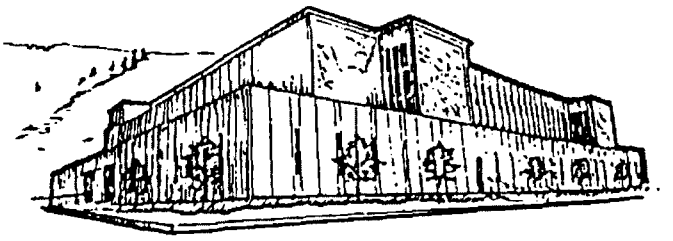
1994

Segmenting bald eagle viewers preferences and attitudes: An exploratory study

Walter L. Bradford
The University of Montana



Maureen and Mike MANSFIELD LIBRARY

The University of Montana

Permission is granted by the author to reproduce this material in its entirety, provided that this material is used for scholarly purposes and is properly cited in published works and reports.

** *Please check "Yes" or "No" and provide signature***

Yes, I grant permission ✓

No, I do not grant permission ____

Author's Signature Walter E Bradford

Date: 5-13-94

Any copying for commercial purposes or financial gain may be undertaken only with the author's explicit consent.

SEGMENTING BALD EAGLE VIEWERS PREFERENCES AND ATTITUDES: AN EXPLORATORY STUDY

By

Walter L. Bradford

B.S., University of Montana, 1975

Presented in Partial Fulfillment of

the Requirements for the Degree of

Master of Science

UNIVERSITY OF MONTANA

1994

Approved by:

Chairman, Board of Examiners

Dean, Graduate School

May 18, 1994

Date

Bradford, Walter L., M.S., May 1995 Recreation Management

Segmenting Bald Eagle Viewers Preferences and Attitudes:
An Exploratory Study (131 pp.)

Director: Stephen F. McCool

Integral to managing an outdoor resource, managers are charged with: providing the visitor a quality experience, protecting the resource and ensuring the visitor's safety. But, who are these visitors, what is their understanding of resource restrictions and what is expected from the on-site experience? A segmentation study of the visitors based upon their recreation benefits sought, yielded answers to the above questions. The results suggest four different visitor types viewing bald eagles during the 1992 eagle migration concentration at Riverside Viewing Area. These viewers differed in their understanding of eagle protection, in their knowledge about the eagle and kokanee resources, in their animal attitudes toward bald eagles, their spending habits and demographically.

ACKNOWLEDGMENTS

This study is the culmination of the effort and cooperation from many individuals. Particular thanks go to Betsy Spettigue and other naturalists working at the department of Fish, Wildlife and parks. Rod Brod and Joel Meier, both members of my committee, provided thoughtful guidance and review. Steve McCool, my committee chair, was indispensably helpful with his guidance, support and understanding, for which I am extremely grateful. Linda Bradford, my wife and best friend, made a significant contribution through her help, patience and understanding. Finally, I would like to thank the visitors whose cooperation made the study a success.

TABLE OF CONTENTS

	Page
ABSTRACT	ii
ACKNOWLEDGEMENTS	iii
LIST OF TABLES AND FIGURES	viii
CHAPTER 1	
INTRODUCTION	1
Problem Definition	1
Visitor Rules and Regulations	2
Segmentation Studies	5
Kellert Animal Attitudes	8
PROBLEM STATEMENT	9
OBJECTIVES	10
CHAPTER 2	
LITERATURE REVIEW	11
Decision Model for Recreation Activity Choice	11
Recreation Motivations and Experience Preferences	15
Benefit Segmentation	17
Kellert Animal Attitude Studies	19
Study Integration	22
CHAPTER 3	
METHODS	24
Study Area	24

Study Population 24

Questionnaire Mailings 25

Questionnaire Design 26

Sample Response 28

Methodology Schematics 28

Typical Studies 29

Segmented Studies 31

Data Analysis Procedures 33

CHAPTER 4

IDENTIFYING BENEFIT SEGMENTS AND ATTITUDES TOWARD ANIMALS 35

Segmentation of the Experience Preferences 35

Identification of the Benefit Segments 35

Coding 35

Factor Analysis 36

Factor Scale Construction 39

Cluster Analysis 40

Final Data Preparation 44

Factor Analysis on Animal Attitudes 45

Coding 45

Factor Analysis 49

Factor Scale Construction 51

CHAPTER 5

RESULTS 56

Visitor Characteristics 56

Visitor's Group and Trip Characteristics 60

Visitation and Economic Results 68

Visitor Reaction to Rules and Regulations 72

Visitor Knowledge 78

Visitor Animal Attitudes 81

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS 85

Segment Findings 85

Enthusiasts 85

Naturalists 86

Nature-Affiliationists 86

Passive-Players 87

Concerns 89

Factor Analysis of Kellert Scales 89

Rules and Regulations Awareness 90

Visitor Learning 92

Possible Regulation Alternatives 93

OTHER USES OF THIS DATA 94

FUTURE RESEARCH QUESTIONS 96

LITERATURE CITED 98

APPENDICES 104

APPENDIX A 104

APPENDIX B 106

APPENDIX C 108

APPENDIX D 110

APPENDIX E 112

APPENDIX F 128

LIST OF TABLES AND FIGURES

TABLE	Page
1A - Kellert Animal Attitude Domains Defined	21
1 - Original Factor Loadings for the Expected Benefit Variables	38
2 - Varirable Statements and Factor Reliability for each Factor Scale	40
3 - Cluster Groups and Variable Means for Various Cluster Sizes	42
4 - The Expected Factors and Variables for the Kellert Animal Attitudes	50
5 - Original Factor Loadings of the Kellert Animal Attitudes	52
6 - Factor Variables and Factor Reliability for Kellert Animal Attitudes	54
7 - Mean Ages By Segment	57
8 - Residence Area Size By Benefit Segment	57
9 - Education Levels By Benefit Segment	58
10 - Occupations By Benefit Segment	59
11 - Income By Benefit Segment	60
12 - Information Sources Each Segment used to Find Out About the Eagles	61
13 - Mean Group Size By Benefit Segment	62
14 - Visitor Group Type By Benefit Segment	62
15 - Time Spent Viewing Eagles By Benefit Segment	63
16 - Viewing Areas Visited By Benefit Segment	64
17 - Viewing Equipment Carried By Benefit Segment	65
18A - The Mean Number of Other Visitors Seen By Benefit Segment	65
18B - Respondent's Feelings About the Number of Other Visitors	66

LIST OF TABLES AND FIGURES CONTINUED

TABLE Page

19 - Respondent's Hearing Human Caused Sound By Benefit Segment 67

20 - Respondent's Feelings About Other's Vehicles By Benefit Segment 68

21 - Respondent's Advance Planning to View the Eagles By Benefit Segment 69

22 - Economic Results and Nights Spent on Viewing Visit By Benefit Segment 70

23 - Visitor Awareness of Existing Rules and Regulations By Benefit Segment 72

24 - Visitor's Feelings Toward Rules and Regulations By Benefit Segment 73

25 - Visitor's Responses to Rules and Regulations Alternatives 74

26 - Respondent's Feelings About Eagle Protection By Benefit Segment 75

27 - Visitor Interaction Dept. of Fish, Wildlife and Parks Personnel 76

28 - Visitor's Opinion About Dept. of Fish, Wildlife and Parks Personnel 77

29 - Number of Eagles Seen Verses Expected By Benefit Segment 78

30 - Visitor Answers to True-False Questions By Benefit Segment 79

31 - Visitors' Kellert Animal Attitudes By Benefit Segment 82

32 - Visitor Sampling Schedule 131

FIGURE

1 - The Between and Within Means of the Various Cluster Sizes Graphed 44

FLOWCHART

1 - Behavioral Model of Recreation Activity Choice 12

2 - Sequence for Average Visitor Study 30

3 - Sequence for Segmented Visitor Study 32

Chapter 1

INTRODUCTION

Problem Definition

The bald eagle represents an American ideal. The Continental Congress adopted this bird of prey as the symbol of a new nation. And for most, viewing a bald eagle in nature is an exhilarating experience.

In colonial times, hundreds of thousands of bald eagles soared in the skies. Today, the number of eagles has dramatically declined. In the 1960's, possibly as few as thirty-seven hundred bald eagles remained (Gorden, 1991).

Protection for the bald eagle falls principally under two acts. Formal protection began with the 1940 Bald Eagle Protection Act (U. S. Congress, 1940). This act provided for fines up to $10,000 and two years in prison for harming bald eagles. In 1973, passage of the Endangered Species Act increased penalties for the molestation of eagles. This act also required managers of federal habitat to prepare recovery plans for listed species of animals and plants (U. S. Congress, 1973). Other federal and state laws have mandated bald eagle nesting and roosting habitats be managed and maintained to the point of recovery (Gorden, 1991).

For many years, migrating concentrations of eagles were drawn to the Flathead River near Glacier National Park in Northwestern Montana. These concentrations of eagles fed on salmon (kokanee) migrating up river to their birthplace to spawn and then die. However, the number of spawning salmon on the Flathead River has decreased such

that they are no longer a major food source for the eagles. At the Flathead River, opportunity for viewing migrating bald eagle concentrations is largely gone.

However, the opportunity for viewing large concentrations of bald eagles in Montana still exists. Bald eagles now congregate, in late fall, at Hauser Reservoir on the Missouri River just east of Helena. People travel long distances to view, photograph, learn about eagles and share the experience their children. During this process, local communities, particularly Helena, receive economic benefit. By understanding the personal outcomes people seek when viewing eagle concentrations, development of a greater appreciation for wildlife and increased resource protection efforts can be achieved.

Visitor Rules and Regulations

While providing an opportunity to view bald eagles, managers of the Hauser Reservoir area must protect the eagle resource from again being lost. According to Driver and Brown (1978) and Peterson and Lime (1979), the most important responsibilities of outdoor recreation managers are (1) to provide the opportunities that recreationists demand and that are appropriate to the managed area, (2) to prevent unacceptable damage to the resource, (3) and to protect the users from serious harm. Regulation of visitor behavior is a common approach for unacceptable damage at recreation sites. These regulations may directly restrict what recreationists do, where they may go, how many can be present in an area at a certain time and so forth. Regulations

are designed to circumvent undesirable behaviors by prescribing allowable or prohibited behaviors (Frost and McCool, 1988).

In the Hauser Reservoir area, several management actions were developed for the migration concentration season. Visitors are regulated by either a "direct" or an "indirect" management approach (Lucas, 1982). With a "direct" management approach the visitor's freedom of choice is limited. The "indirect" management approach is softer and more subtle (McCool and Christensen, 1993). Management seeks to alter behavior, but the final decision on the behavior is left to the visitor. Because "indirect" management leaves the visitor with more discretion in following the regulations, the effectiveness of this approach is often questioned. However, the direct approach can cause strain between the visitor and management; thereby, becoming controversial. Lucas (1982) also warns about the possibility of excessive regulation becoming counter productive.

Producing and enforcing regulations is not the manager's sole responsibility for resource management. Wagar (1966) stated three premises resource managers have in providing a quality experience. His first premise is the land manager's sole purpose is to provide benefits to people. The second premise is that recreation is motivated by needs like all other human behavior. His last premise is that quality depends upon how well the needs motivating the recreation are satisfied. Thoroughly satisfying experiences will have a higher quality than partly satisfying ones (Wagar, 1966).

Perception of the necessity for these restrictions influences the visitors' acceptance of these rules and regulations. A number of authors have insisted that knowledge of the

rationale for regulations and the benefits derived from them seems to be integral to visitor acceptance (Frost and McCool, 1988 and Lucas, 1982). The visitors' various expectations (e.g., viewing the eagles, solitude or observing scenic beauty) may affect their response to the regimentation. These visitors may perceive the rules and regulations as necessary for attainment of their own goals or other goals they support. Lucas (1982) suggests that an explanation of the necessity for regulations can be helpful "by reducing perceptions of regulations as arbitrary hassles." If the visitor is provided with an understanding of the rationale for the regulation, the regulation may be better comprehended and possibly more voluntarily honored (Frost and McCool, 1988). Knowledge of management's restrictions and the reasons for their existence may be a rationale for visitor acceptance.

The basic management restrictions for protecting the bald eagle concentration in the Hauser Reservoir area are made in the following statements. Access roads to the area across the river from the viewing site are closed. Use of all trails and offroad hiking are prohibited on the mountain west of the viewing site. All boating is banned between Canyon Ferry Dam and Hauser Reservoir. However, these management requirements only satisfy the second responsibility (protection of the resource) as stated by Driver and Brown (1978).

Manning (1985) states that "tastes in outdoor recreation among the public are diverse." There is diversity in regard to attitudes about policy, facility and service preferences, desired user-density levels, or motivations for recreation participation (Manning, 1985). Burch (1966) states that not only are there differences in tastes between people but people's tastes can change over time. Finally, Shafer (1969) uses the

illustration of the "average camper who doesn't exist." Shafer demonstrates how the mathematical properties of averages obscure real variation in data and creates a model that no one actually fits (Shafer, 1969).

Managers must protect the resource and do so by implementing rules and regulations. Managers must also provide experiences that satisfy the user's needs. The user's needs are complex and diverse. No one is average. Perhaps, to meet the above requirements, it is necessary to determine what kinds of users or user groups visit recreation resources. A possible way of doing this is through use of market segmentation.

Segmentation Studies

In the mid fifties, a new marketing idea was introduced. This idea is considered a fundamental concept in modern marketing analysis and is known as market segmentation (Wind, 1978). Segmentation is the process of partitioning heterogeneous markets into homogeneous segments of potential customers with similar characteristics who are likely to exhibit similar purchase behavior (Weinstein, 1987). Simply stated, this means placing members of a large group with many interests into smaller groups with common interests. Markets may be segmented on the basis of, but not limited to, geographics, demographics, socioeconomics, psychographics, product usage or benefits sought. The segmentation model requires a basis for segmentation (one of the above) as well as descriptors (independent variables) of the various segments (Wind, 1978). Considerations for selection of descriptor variables include management's specific needs, current knowledge of the market and consumer behavior knowledge. There is no single

best basis to segment (e.g., product usage or socioeconomic), for all markets because incorrect marketing decisions may result from using the incorrect basis (Wind, 1978).

The market segmentation strategy developed from the need to determine the types of people utilizing a product. Also, new product markets could be developed by creating products based upon the needs of a new market group. The fundamental idea of market segmentation is to create a portrait of a user or a potential user for a product. The alternatives for basis of segmentation are almost limitless (Wind, 1978).

Historically, segmentation started on a geographic basis. Then, as the number of national brands increased, market research started to look at segmentation on demographic basis. Many of those demographic studies showed that demographic variables such as age, gender, income, occupation, and even race are not good general predictors of behavior. Thus, they were less than optimum bases for segmentation strategy (Haley, 1968).

"Benefit" segmentation became a strategy to identify segments by causal factors instead of descriptive factors. The benefits sought by consumers determine their purchase behavior much more accurately than demographic characteristics. After people have been classified into segments according to the benefits sought, each segment is contrasted with the other segments in terms of demography, perceptions, lifestyles, and so forth. Doing so yields a deeper understanding of the people that make up each segment. The basis of this approach is a detailed measurement of consumer value systems by finding out what the consumer thinks about the product category of interest (Haley, 1968).

Each segment is identified by the benefits sought. Yet, it is the mix of benefits sought that differentiates one segment from another. For example, one recreationist may seek solitude, want to learn about nature and be in a natural setting. Another recreationist may want to do things with companions, learn more about nature and release built-up tensions. Both recreationists want to learn about nature but seek a different mix of other benefits. That mix of dissimilar benfits sought is used to differentiate among the recreationists.

Once the marketer or manager understands the kinds of segments, new opportunities or effective ways of positioning the product or site from this research can be developed (Haley, 1968). Weinstein (1987) states that when properly used, benefit segmentation is widely accepted as one of the best ways to segment a market. He also states, "Since benefits recognize why people buy, their purposes and product desires, a direct, or cause and effect, relationship exists between motivations and purchase patterns (Weinstein, 1987)."

Knowledge of the benefits recreationists seek through segmentation analysis can give the manager a chance to enhance protection of the resource. By understanding the benefits people desire from the natural character of the area, the salient product or setting characteristics can be protected. Also, with knowledge about the type of people using the resource, marketing of the resource can be targeted toward those groups of people most suited to recreate at that resource.

The Department of Fish Wildlife and Parks is mandated to protect the natural and scenic resources it manages. From a marketing standpoint, protecting or enhancing the

site may be a resource development strategy. Marketing is not synonymous with promotion (Lehmkuhl, 1984). However, promotion can be a marketing strategy. For example, if visitation levels at the Riverside Recreation Area rose to a point that the eagles were affected, a marketing strategy could be designed to decrease the amount of visitation. By marketing the Riverside Recreation Area effectively, the benefits the visitors wish to receive and the resource capability could be better matched.

Segmentation is not a new idea to the recreation industry. Numerous bases for segmentation studies have been used concerning travel and leisure research. Some examples include: segmenting the "heavy" traveler (Woodside, Cook, and Mindak, 1987), segmenting travelers by destination and previous experience (Perdue, 1985), segmenting travelers by distance (Etzel and Woodside, 1982), segmenting using demographics and magazine readership (Crask, 1981) and travel market segmentation (Bryant and Morrison, 1980). All of these segmentation studies have proven useful to people in the recreation and travel industry. Another useful tool for understanding outdoor recreation behavior and acceptance for regimentation is to understand recreationst's attitudes toward animals and animal habitat.

Kellert Animal Attitudes

Visitor attitudes can be measured based upon visitor intentions and motivations and then analyzed in segmentation studies. Interestingly, Stephen Kellert (1980b) has developed animal attitude scales to assess the relative distribution of various animal

attitude types among the general public. These attitudes describe basic perceptions rather than behaviors. Kellert (1980b) also states these attitudes should not be identified with individual people, but instead generalized to the groups of people studied. Kellert's scales are crude approximations of the attitude types and only in the broadest sense measure the true prevalence and distribution amongst the general population. These scales can be used to estimate the attitude types prevalent in a population.

Problem Statement

Managers, according Driver and Brown (1978), have the responsibility to provide the appropriate opportunities that recreationists demand, protect the resource, and protect the recreationists from potential harm. The problem for the managers is that the backgrounds of the recreationists are unknown with reference to their motivations and benefits sought. To meet Driver and Brown's (1978) resource manager responsibilities, more in depth knowledge about the type of recreationists (consumers) and their motivation and benefits desired is required. Motivational factors influencing bald eagle viewers are many and varied. There may be a variety of expectations about the dimensions of the eagle viewing experience. Some may seek solitude. Some may wish to spend time with others enjoying a common interest or spend time in a natural setting. Understanding the expectations and desired psychological outcomes is an important aspect of the resource site manager's function. Is more than one visitor group type viewing the bald eagles at Riverside Recreation Area? If there is, can these different visitors be described and pinpointed on the basis of demographics alone?

There is also a management responsibility to protect the eagles. The concentrations of eagles at the Hauser Reservoir area provide a unique experience and require protection from human impact. Some management actions are already set up and may need revision. Others may need to be adopted. If there are different types of eagle viewers, an understanding of the viewer's behavior intentions and motivations might yield less restrictive, but just as effective, management actions. How do the viewers perceive the restrictions on their behavior? What are the visitors' perceptions of these restrictions on their eagle viewing experience?

Objectives

The objectives of this study are to:

1. Identify the social-psychological outcomes desired by the eagle viewing public.
2. Identify if there is more than one type of eagle viewer by using the benefit segmentation approach.
3. Determine viewer attitudes toward bald eagles.
4. Determine the level of knowledge visitors have about the Bald Eagles and the salmon on which the eagles feed.
5. Determine the visitor perceptions of current management restrictions and other possible restrictions.
6. Determine visitor perceptions of management and the on-site assistants aiding the eagle viewing.

Chapter 2

LITERATURE REVIEW

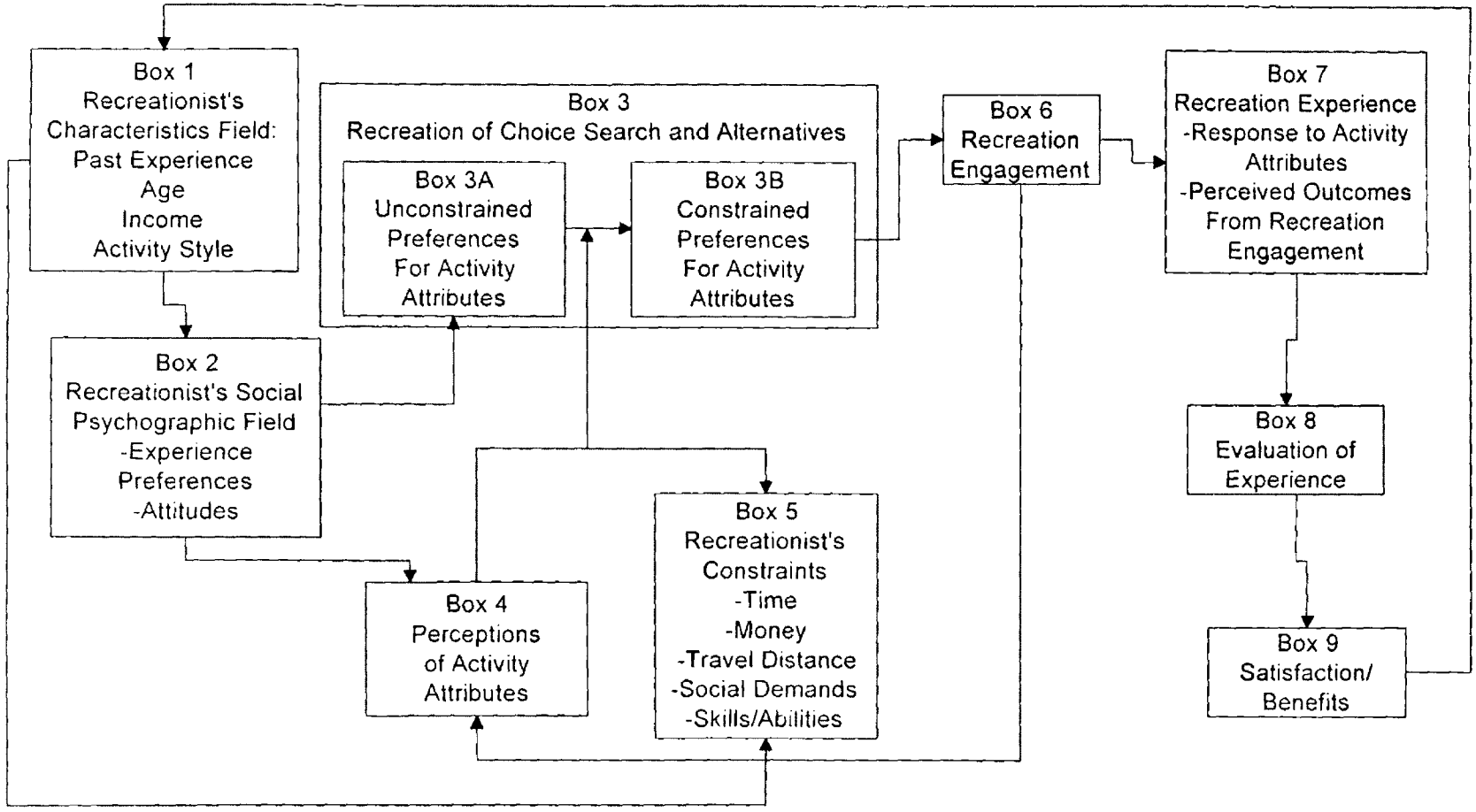
Throughout the first chapter, there was mention of different domains requiring exploration to better determine the types of visitors viewing bald eagles. The domains discussed were management rules and regulations, Driver Scale recreation motivation domains, and Kellert attitude scale domains. From the objectives stated in Chapter 1, the reader should see that many other variables need measurement in this study. Without a process or framework to understand the use of these variables, a discussion of these variables is unclear.

A model for recreation choice is included to aid the reader's understanding of the relationship between these variables. The model was developed by Harris, Driver and Bergersen, 1985. Ideas in the model are not the focuses for this study and the model is included only for reader clarification. This study is primarily focused on exploratory research concerning visitor attitudes and preferences.

Decision Model for Recreation Activity Choice Behavior

The model for recreation decision choice criteria was developed from previous research (Driver and Brown 1975 and Harris, Driver and Bergersen, 1982). A potential recreationist possessing individual characteristics that distinguish one recreationist from another (Box 1) begins the model. Variables such as demographic and experience variables make up an individual's characteristics. In the social psychological field (Box 2), the recreationist's experience preferences or motives for recreating are considered.

FLOWCHART 1: BEHAVIORAL MODEL OF RECREATION ACTIVITY CHOICE



SOURCE: Harris, Charles B., B. L. Driver and E. P. Bergersen, 1985.

This box also includes the individual's attitudes and preferences toward the attributes sought while recreating at a site (Harris, Driver and Bergersen 1982). For example, a person living in Western Montana might choose a recreation experience like watching a professional baseball game. Several alternatives are available. One alternative could be travel to Helena, Montana and watch Rookie League Baseball. Another alternative could be travel to Spokane, Washington and watch a "AA" League Baseball game. The last alternative could be travel to Seattle, Washington and watch a Major League Baseball game.

The recreation choice decision box is composed of two sub boxes (3A and 3B). Unconstrained preferences for the recreation of choice (Box 3A) are based upon the individual preferences for recreation activity attributes. An example of unconstrained preferences could be the expected quality of baseball played. Higher division baseball players are expected to play better than lower division ball players. These unconstrained preferences are based upon perceptions of the chosen activity attributes (Box 4). From the baseball example, the recreationist might perceive Rookie League Baseball as far inferior to AA League or Major League Baseball and prefer not to watch Rookie League Baseball. The recreationist might continue his evaluation finding he prefers not to watch AA League Baseball if Major League Baseball is not constrained in other ways. Actual constraint preferences are the personal resource limits (time, money, social demands, skill, etc.,) placed on the recreationist (Box 5). Continuing with the baseball example, a baseball game in Spokane, Washington requires eight hours of travel time round trip by

auto. However, an afternoon game could be viewed without requiring an overnight stay in Spokane. An automobile trip to Seattle requires ten hours one way and purchase of a hotel room. It is more expensive to attend a Major League Baseball game. Traffic is much greater in a metropolitan area. There may be many other constraints. Both constrained and unconstrained preferences are evaluated by the individual when choosing a recreation activity type. The activity chosen represents the decisionmaker's constrained set of preferences for the chosen recreation activity attributes (Box 3B). This model implies decision criteria will be maximized and the best choice among alternatives will be made (Harris, Driver and Bergersen 1982).

After choosing an optimal recreation activity, the recreationist may or may not decide to take part in the activity. If the individual participates in the chosen activity, the participant will experience the recreation attributes and perceive certain outcomes derived from that engagement (Box 6). The recreation experience (Box 7) results as a response from the recreation engagement. Recreationists evaluate the engagement by comparing the expected attributes (the desired outcomes) from the engagement with those experienced (Box 9). By comparing the experience with the perceived expected and desired outcomes of the engagement, the recreationist assesses satisfaction and benefits gained from the experience (Box 10). This model provides a framework that integrates the process for choosing a recreation activity and an experience evaluation resulting from that decision (Harris, Driver and Bergersen, 1982). The model can be adapted to other recreation or leisure activities.

Again, recreation activity choice is not the purpose of this study. Recreationists taking part in this study had already chosen eagle viewing as a recreation activity. This model is shown for reader clarification only. The model shows the relationship of the individual decision processes involved when choosing and evaluating a recreation activity. The variables measured in this study come from the various process steps involved in the recreation activity choice and evaluation model. The sole purpose of explaining this model is to show variable interaction and the purpose for that variable's measurement. In further discussions in this chapter, the reader will be referred to the different boxes in this model.

Recreation Motivations and Experience Preferences

To change user behavior, resource managers manipulate the setting and thus influence those using the setting. Managers may also influence users by providing offsite information. A better understanding of the motivations for using the recreation setting and the benefits sought by visitors is needed, because it can provide managers the information necessary to determine effective actions and changes in the setting.

Lucas (1985) defines a motive as more or less a consistent predisposition to act on a certain type or set of needs. The extent to which a motive will direct behavior is dependent upon the amount of perceived deprivation. These motives are contrived notions and there is no universal list of motives (Lucas, 1985). For example, the motives of one bald eagle viewer are not necessarily the same or have equal importance as those of another bald eagle viewer.

Some viewers may view eagles for purposes of solitude. Others may choose to view eagles to spend time with family or friends while enjoying social interaction. Some may want to commune with nature. Other viewers may seek relief from societal pressures by escaping from those pressures.

Driver (1975) recognized the forces initiating behavior are voluntary and represent preferred conditions. The fulfillment of these motives is viewed as an outcome or "desired consequence" (Driver and Knopf, 1977). Driver views recreationists as acting rationally. This means a particular behavior and environment is chosen based upon the information available which can produce the best desired outcome. People participate in recreation with the expectation they will encounter desirable conditions for attainment of the desired outcome (Lucas, 1985).

Driver conceived "recreation experience preferences" as reasons for engaging in recreation behavior (Lucas, 1985). As a result, Driver (1977) developed an "item pool of scales" to identify and quantify the relative importance of the different psychological outcomes desired and expected from recreation participation. These scales were designed for use in both on-site and off-site studies. Respondents are asked to rate the relative importance of the scale items as reasons for deciding to participate in a certain activity. A 6-point Likert response format ranging from Not Important to Extremely Important is chosen by the respondent for each scale used (Driver, 1977).

These items become the basis for "benefit" segmentation in this study. The "Desired Outcome" variables created by Driver are the experience preferences found in box 2 of the Behavioral Model of Recreation Activity Choice.

Benefit Segmentation

Understanding the products or benefits viewers seek is essential to the site manager. One way of understanding visitors' diversity is through segmentation of visitors based upon expected benefits or motivations for visiting the site. By understanding user motivations and the expected benefits (payoffs), the manager can provide more acceptable rules and regulations to effectively manage and protect the resource.

However, sometimes segmenting markets is not appropriate. At the beginning of the study, the relevance of market segmenting must be decided. According to Young, Ott, and Feigen (1978) segmentation is not appropriate when:

1. The market is so small that marketing to a portion is not profitable.
2. Heavy users make up a large portion of the sales volume and only they are relevant to the market.
3. The brand is the dominant brand in the market. If the brand is dominant, it draws appeal from all segments of the market (Young, Ott, and Feigen, 1978).

These authors also state, segmentation based on benefits is usually the most meaningful basis because it directly facilitates product planning, positioning and advertising communications (Young, Ott, and Feigen, 1978).

Wind (1978) describes some different methods for segmentation design. Design of the segmentation model may be characterized as *a-priori* or *cluster-based* segmentation. In *a-priori* segmentation the selection of the dependent variable (the basis for segmentation) and hypotheses are planned (Wind, 1978). In *cluster-based*

segmentation the number and type of segments are not known and are determined by clustering the respondents on their similarities (Wind, 1978). Frequently, cluster analysis is preceded by a factor analysis designed to reduce the original set of variables. *Cluster-based* segmentation is used in this study because the number and type of segments were not known or predetermined.

Several recent studies in the tourism and recreation literature have successfully used benefit segmentation to differentiate among visitor types. Frequently these studies have used benefit segmentation to predict behavior. Some recent studies based upon benefit segmentation follow.

Loker and Perdue (1992) segmented nonresident summer travelers for the North Carolina Division of Travel and Tourism. They determined which segment members were most profitable, most reachable, those who could become interested in travel to the area studied and the effectiveness of the information sent to the possible nonresident visitors.

Pitts and Woodside (1986) studied personal values and travel decisions of 250 members of the University of South Carolina Consumer Panel. They found personal values appeared particularly useful in describing those individuals who visit a particular travel area versus those who do not. Also, two strategies were found for promoting attractions. First, emphasis in the manner that the attraction fulfills important personal values should produce new and repeat visitors. Second, a strategy directing advertising toward the needs of non-visitors that broadens the appeal to non-visitors.

Woodside and Jacobs (1985) asked representative samples of Canadian, American and Japanese tourists to Hawaii to complete a questionnaire at the conclusion of their trip. This study found that some messages appropriate for Japanese tourists were inappropriate for American and Canadian tourists. Stressing family togetherness is inappropriate for appealing to Canadian travelers. For American tourists, stressing the learning of new cultures is appropriate for targeting new tourists. "Share your love with each other in Hawaii, Hawaii is for lovers" is the appropriate way to appeal to the Japanese.

In a "seasonal" segmentation of tourism marketing, Calantone and Johar (1984) studied nonresident travelers for the Massachusetts Department of Commerce and Development. This study found a travel benefit package was sought by respondents with a particular demographic and psychographic profile for one season and a different profile for other seasons. People's benefits sought change over the different seasons. Products or services that have a seasonal pattern of usage can lead to faulty conclusions.

Kellert Animal Attitude Studies

A significant component of this study is to determine if benefit segments are related to attitudes toward animals. This is a significant issue for several reasons. First, segments may vary on their attitudes. By knowing how the segments vary, managers can determine communication strategies for changes to the different segment's attitudes and behavior. Second, particular attitudes may be directly related to behavior or evaluations of prior management programs. Last, determining the existence of different segments can help management better understand the values their clientele place on animals.

The dominant work in this area has been initiated by Stephen Kellert at Yale University. In the 1970's, Stephen Kellert created a typology for studying the attitudes of people directly involved with animals. He later used this typology in a national study of American attitudes toward animals (Kellert, 1980a). These attitudes describe basic perceptions instead of behavior. The attitudes may describe elements of a persons's perception and rarely are all of an individual's actions explained by only one attitude (Kellert, 1980a).

Kellert's animal attitudes domains are identified in Table 1A (next page). According to Kellert (1980a) these scales are crude and only in a broad sense measure the true prevalence and distribution in the American population. The most common attitudes held by the American public are the humanistic, moralistic, utilitarian and negativistic (Kellert, 1980a). Moralistic and utilitarian attitudes clash around the theme of exploitation of animals. Negativistic and humanistic attitudes also tend to clash around the theme of affection for animals. However, they do not clash to the degree of the moralistic and utilitarian attitudes (Kellert, 1980a).

Kellert has used his attitude scales in several studies. These include studies of animal attitudes of the general public (Kellert, 1980a), attitudes and knowledge of animals (1980b), attitudes and knowledge as affected by gender (Kellert and Berry, 1987). Some specialized animal studies include birdwatching (Kellert, 1985) and public perception of the timberwolf (Kellert, 1987). The animal attitudes to be measured are found in Box 2 of the Model for Recreation Activity Choice.

Table 1A. The Animal Attitudes and Their Definition as Developed by Kellert .

1. *Ecologistic Attitude* - this attitude focuses primarily on wildlife with emphasis directed at a conceptual understanding of the interrelationships of a species in the context of ecosystems and a major concern for dependencies between animals and their natural habitat.

2 *Humanistic Attitude* - this attitude emphasizes feelings of strong affection and attachment to individual animals usually pets. The animal is a recipient of feelings and emotional projections similar to those expressed to people.

3. *Moralistic Attitude* - this attitude generates concern for ethically appropriate human treatment of animals. The most basic tenants of this attitude are strong opposition to inflicting pain, harm or suffering on animals.

4. *Naturalistic Attitude* - this attitude is characterized by strong interest and affection for the outdoors and wildlife. Contact with the natural setting is especially valued along with the outdoor recreational benefits of wildlife. This attitude is similar to the ecologistic attitude but with a lesser degree of involvement.

5. *Scientistic Attitude* - the emphasis of this attitude is the concern with the biological and physical characteristics of animals. Animals are sources of curiosity, study and observation.

6. *Aesthetic Attitude* - the focus of this attitude is the attractiveness or symbolic significance of animals. The major concern is with artistic merit, beauty or emblematic representation.

7. *Utilitarian Attitude* - the attitude is concerned with the practical or material value of animals. The relevance of animals is derived from their usefulness to people. This attitude broken into two sub-characteristics. *Utilitarian-Consumption* and *Utilitarian-Habitat*. *Utilitarian Consumption* is concerned with the animal's usefulness for human diets. *Utilitarian-Habitat* is concerned with choice between saving the animal's habitat for animal uses or using the habitat for other human purposes.

Table 1A. The Animal Attitudes and their Definition as Developed by Kellet Continued.

8.	*Dominionistic Attitude* - orientation of this attitude is toward satisfaction derived from mastery over animals. Animals are valued for their expression of prowess, skill, strength, and masculinity. Conquest of the animal represents a demonstration of superiority and dominance.
9.	*Negativistic Attitude* - this attitude dwells on the dislike or fear of animals.
10	*Neutralistic Attitude* - this attitude is more passively oriented toward the avoidance of animals because of reason of indifference.

Study Integration

This study will identify the different viewer benefit segments by utilizing Driver's (1977) "item pool of scales". Recreationists' experience perceptions of the recreation activity attributes (Box 2 of Recreation Activity Choice Model) are the basis for segmenting visitor groups in this study. After identifying the benefit segments, these segments will be examined by studying the viewer's response variables for rules and regulations, demographics, knowledge, and the Kellert scales (Boxes 1 an 2 from the Recreation Activity Choice Model). Results from measurement of these variables and the recreationist's evaluation of the eagle viewing experience are reported based on each benefit segment (independent variable). Also, this model shows the interaction between the various dependent variables and the benefits recreationists receive from a chosen activity experience.

The study is exploratory in nature. Due to this exploratory nature, no formal hypotheses are made. It can be hypothesized that distinct benefit segments exist.

However, the segment types are unknown and therefore no linkages between benefit behavior groups and the response variables can be stated. Another general hypothesis is that bald eagle viewing attitudes may vary between the segments. Again, because the segments are unknown, there is no way of creating formal hypotheses. The segmented variables are unidentified and relationships between them cannot be stated.

Chapter 3

METHODS

Study Area

The study area is comprised of sites along Hauser Reservoir on the Missouri River, just east of Helena, Montana. The main bald eagle viewing area is a Department of Fish, Wildlife and Parks day-use area located below Canyon Ferry Dam called Riverside Viewing Area. Other eagle viewing opportunities exist at York Bridge and various sites along Hauser Reservoir. A visitor center is present at Canyon Ferry Village. However, there is little opportunity for viewing bald eagles at the Visitor Center. The center provides visitors information about the eagles and the salmon (kokanee) upon which the eagles feed. This study concentrated on bald eagle viewers visiting Riverside Viewing Area and/or the Canyon Ferry Visitor Center for recreation purposes during the bald eagle concentration period.

Study Population

The study population is defined as all persons aged eighteen and over who visited the viewing area and/or the visitor center during the sample periods. Sampling periods and their determination are explained in Appendix F. Persons returning from the viewing site or exiting the visitor center, meeting the study population criteria, were approached and asked to participate in the study. Visitors willing to participate in the study were asked to provide their name, address, age, group type, and group size on a registration

card (Appendix A). These willing participants were told they would receive a questionnaire in December concerning their visit to the Bald Eagle Viewing Area and/or the Canyon Ferry Visitor Center. Due to possible time conflicts with the hectic pace of the Christmas and the New Year holidays, the questionnaire was mailed in early January.

Questionnaire Mailings

The sampling objective for the study was to contact as many eagle viewers as possible leaving the Riverside Viewing Area or exiting the Canyon Ferry Visitor Center. Stopping all viewers was sometimes difficult at the Riverside Viewing Area because of the large number of weekend viewers. If two cars were stopped for sampling information, any other departing vehicles were waved-on. Waving-on of departing groups was done to avoid detracting from the viewing experience. Also, the creation of long exit lines and other vehicle congestion choked the entry/exit point. The number of willing participants contacted was 763 viewers in 417 groups. About 1% of the viewers contacted declined to take part in the study.

At least one person from every registration card was chosen to receive a questionnaire. All registration cards containing one name were sent a questionnaire. On registration cards containing two names, the name choice for receipt of a questionnaire was alternately chosen. The first name listed on the first registration card was chosen. For the second registration card, the second name listed was used. On the third registration card, the first listed name was chosen. For the fourth card, the second listed name was used. This alternation continued for all cards containing two names.

Registration cards containing three names were also alternately chosen. The first name was chosen on the first registration card. On the second registration card, the second name was used. For the third registration card, the third name was chosen. This process was then repeated on all of the remaining three name registration cards.

On registration cards containing four or more names, the second name was chosen on the first card and the fourth name was chosen on the second card. This process yielded 438 names for questionnaire receipt. Another 30 names were added to the questionnaire receipt list by comparing nonselected last names to selected last names on the registration cards and then adding those nonselected names. The total names chosen to receive questionnaires were 468. Questionnaire packets were made for the 468 names. At the time of mailing, eighteen packets were randomly withdrawn to arrive at the sample size of 450 questionnaire packets.

A cover letter (Appendix B) explaining the importance of visitor participation, a questionnaire survey (Appendix E) and a postage-paid preaddressed return envelope were included in the questionnaire packet. On January 5, 1993, the first questionnaire packet mailing took place. If necessary, a follow-up reminder post card (Appendix C) was mailed on January 13, 1993. A final questionnaire packet mailing, for those not yet responding, was completed on January 25, 1993 (Appendix D).

Questionnaire Design

The Riverside Bald Eagle Viewer Study questionnaire consisted of 25 questions (Appendix E). The questionnaire was designed to gain visitor information

concerning the following areas of interest:

1. Social Demographics
2. General Visitation Information
3. Desired Social-Psychological Outcomes
4. Eagle Viewing
5. Visitor Attitudes Based Upon Kellert Scales
6. Knowledge of Eagle and Salmon Behavior
7. Perception of Crowds, On-Site Vehicle Movement, and Human Induced Sound
8. Visitor Knowledge and Perception of Management

Driver's (1977) scales were used to measure expected outcome domains. The viewers were asked to recall the importance of 17 "reasons" for visiting the bald eagle viewing areas and/or the visitor center. These expected outcome variables will be used to create the benefit segments. Once the benefit segments are determined, the segments become the dependent variables.

Dependent variables were measured through a variety of techniques. Kellert Scales were used to reveal respondent's various attitudes toward animals by asking the respondents' agreement with bald eagle or animal habitat statements. Twenty-two questions representing seven animal attitude domains were asked. There were sixteen questions measuring visitors' knowledge about the eagles and kokanee. A true-false format was used for these questions. For the balance of the questions, the respondents answered in a Yes-No format, made fill-in-the-blank entries or selected an answer from a range of answers.

Sample Response

Visitor contacts yielded names of 763 visitors willing to take part in the study. The cooperation by the visitors was excellent. Of the 450 questionnaire packets sent, only two were returned because of a bad address. From a net sample of 448 questionnaires, 396 questionnaires were completed and returned yielding an 88% response rate. Such a response rate may be attributed to a highly motivated and interested eagle viewer population, personal contact at the site, a follow-up reminder, a second questionnaire mailing, and the questionnaire instrument. Since the response rate was significantly higher than 80%, the effect of any non-response bias was thought to be insignificant (Dillman, 1978).

Methodology Schematics

Two schematics are shown, for reader understanding of the reasons for segmenting the study population, and to show the relationship of this study's variables. The first schematic (Flowchart 2) demonstrates how the data is used to report findings in a typical study. A typical study reports the data domains based upon the average of all respondents. Reporting data based upon the average of all respondents may be reporting of data for people who do not exist.

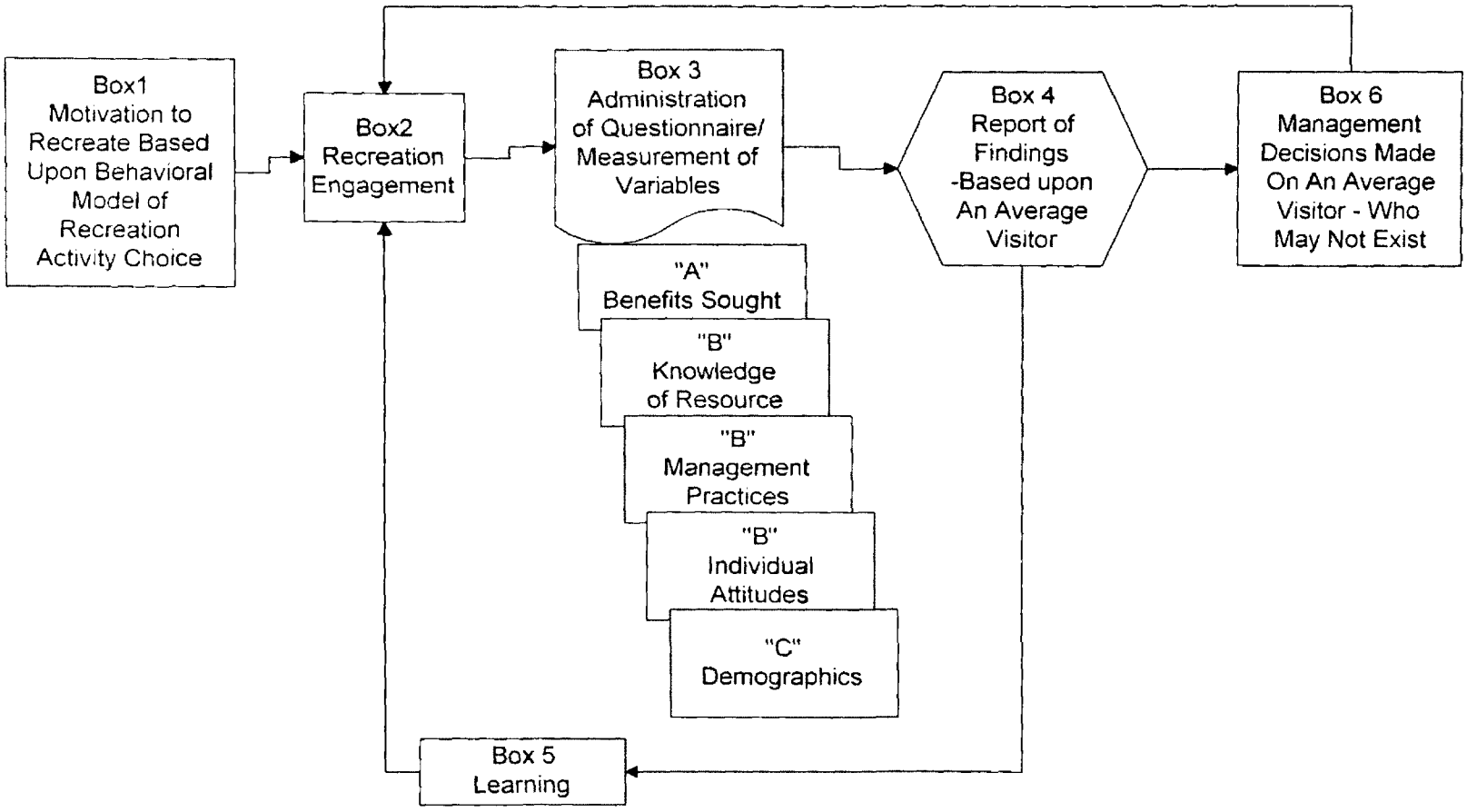
A second schematic demonstrates use of data in segmentation study (Flowchart 3). This schematic indicates where in the process the data is segmented and then how the individual group data is used for reporting purposes. Segmentation studies report the

data for each domain measured based upon the actual groups of respondents, not for an illusive average visitor.

Typical Studies Schematic

A schematic for an average visitor study is found in Flowchart 2. In many study sequences, the typical flow of many studies start with a motivation to recreate (Box 1). Then, the recreationist engages in the recreation event (Box 2). The individual is contacted and some form of measurement concerning their recreation engagement is administered (Box 3). Most studies will attempt to measure the individual's benefits sought, knowledge about the resource, management practices, individual attitudes and the individual demographics. Management may also want to know the effectiveness of their displays and interpretative information. This can be measured by testing the individual's learning of that information (Box 5). The study results are reported by the researcher to the site manager (Box 4). Finally, the manager uses the information gained from the research to manage the site and implement management changes based upon the study's results. This type of study is based upon the average site visitor. However, the data may be describing a visitor who really doesn't exist.

FLOWCHART 2: SEQUENCE FOR AVERAGE VISITOR STUDY



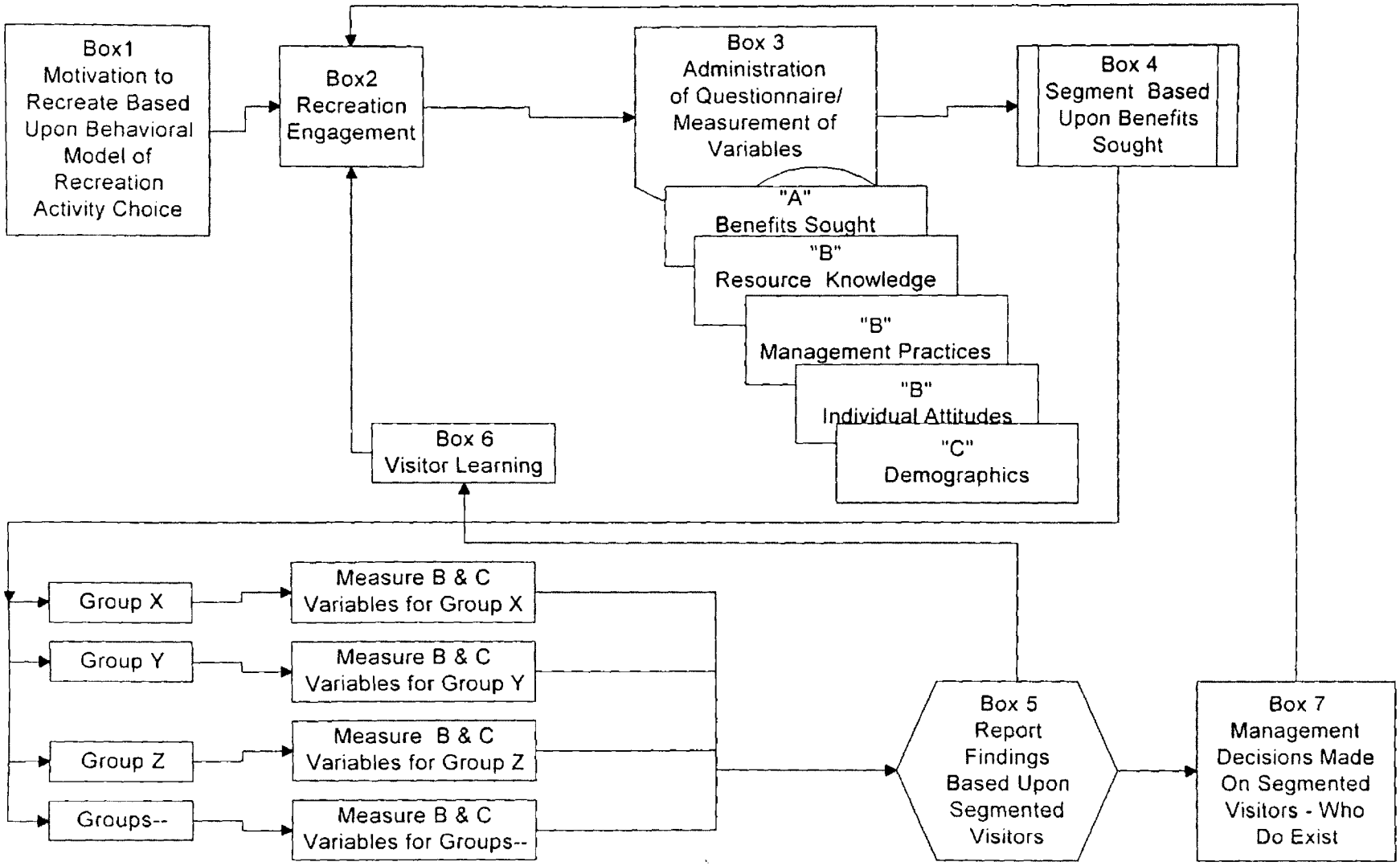
"A" and "B" Variables from Box 2 Behavioral Model of Recreation Activity Choice

"C" Variable from Box 1 Behavioral Model of Recreation Activity Choice

Segmented Study Schematic

A segmented study based upon the benefits sought by the recreationist begins similarly to the typical type of study. The recreationist is motivated by a recreation need (Box 1). The individual engages in the recreation event (Box 2) and a questionnaire is administered to the recreationist (Box 3). These steps are similar to those in the typical study flow. In this segmentation study, the respondents are segmented based upon benefits sought (Box 4). A segmentation study separates a heterogeneous group of people into separate homogeneous groups. The researcher determines the different visitor types based upon the benefits sought by use of certain statistical tools.

Next, the researcher measures each segmented group type's knowledge about the resource, management practices, attitudes toward the resource and demographic information (Group Boxes). Testing of management's interpretative information effectiveness may be measured at this step (Box 6). Research findings are reported based upon the information gained from each group (Box 5). Finally, the site manager uses this information to manage the recreation site (Box 7). By using benefit segmentation, the information reported to management is based upon known types of site users. Now, the site manager can use the segmented group's information and direct his management efforts toward known groups of individuals instead of an elusive average user.



"A" and "B" variables from Box 2 and "C" Variables from Box 1 of Behavioral Decison Model of Activity Choice

Data Analysis Procedures

Data analysis was done on a personal home IBM type computer. The statistical package used is SPSS+ 4.0 (Norusis, 1990). Factor analysis was performed on both the benefits sought variables and the Kellert animal attitude variables. Factor analysis permits the reduction of a large number of variables to a smaller number of latent dimensions or factors (Kaas and Tinsley, 1979). Principal axis factor analysis with varimax rotation was used to analyze the benefits sought variables (Driver Scales Domains) because this method is supported by Kaas and Howard (1979) and Watson and Niccolicci (1992). Missing values were treated pairwise. Treatment of missing values pairwise means that cases having valid values on both variables used in a calculation are included in that calculation. Any other cases are deleted. A result of using pairwise deletion is that the number of cases calculated will change as different variables are calculated (Norusis, 1990).

Kaas and Howard (1979) recommend principal axis factor analysis for exploratory testing because principal axis factor analysis measures only common variance. Common variance is the portion of a variable's variance that is common to at least one other variable (Kaas and Tinsley, 1979). Principal components analysis is also acceptable. However, principal components analysis measures common, specific and error variance. Specific variance is that portion of a variable's reliably measured variance. Error variance is variance unique to the variable that is not reliably measured. Coefficients lower in value than 0.4 were suppressed. Factors with Eigenvalues (scores) greater than one are retained for cluster analysis.

Reliability measures (Cronbach's Alpha) were tested before clustering the respondents around the new benefits sought factors. Using these factor scores from the variables, a k-means clustering procedure was used for clustering the respondents. Missing values were handled pairwise. This clustering procedure places each observation into one and only one cluster.

Principal axis and principal components analyses were performed on the Kellert animal attitude variables. Principal components analysis with varimax rotation (missing values handled pairwise) was used because the factor loadings from the principal components method most closely yielded the expected factors. Reliability analysis using Cronbach's Alpha was also measured.

Chapter 4

IDENTIFYING BENEFIT SEGMENTS AND ATTITUDES TOWARD ANIMALS

Segmentation of the Experience Preferences

There are two purposes for this chapter. First, the sequences required to develop the viewer benefit segments are explained and the various benefit segments are identified. Second, the processes used to identify viewer attitudes toward bald eagles are described. Benefit segments are developed by a three-step process. Coding of item responses is the first step. The second step involves factor analysis to identify underlying benefit domains. Third, a cluster analysis identifies people with similar responses and places them into groups. Those groups found from the cluster analysis become the benefit segments.

Identification of the Benefit Segments

Coding

Seventeen statements were presented to the respondents involving the expected benefits respondents had for viewing eagles. Each statement was developed from Driver's (1980a, "item pool of scales") recreation experience preference scales. These scales are designed to identify and quantify the relative importance of the different psychological outcomes desired and expected from recreation engagements. Each respondent was asked to rate the importance each statement had in relation to their eagle viewing trip.

Coding involved assigning a number code based on the respondents importance level shown for each statement. The respondent could choose from six importance levels ranging from extremely important to not important. The importance levels were coded extremely important (6) to not important (1).

Factor Analysis

In the second step, a factor analysis of the responses from the seventeen variables was performed. Factor analysis was done to identify if a simpler underlying benefit structure existed. This analysis also detects whether the data structure can be made smaller for ease of use and still portray respondents' information.

In the first step of factor analysis, each variable's variance is measured. After measuring the variance for all variables, factor analysis looks for variables with similar variance characteristics. A variable may have variance characteristics similar to other variables in more than one factor category. Variables having similar variance characteristics are then assigned to one or more factor categories.

During the procedure, three types of variable variances may be extracted. These variance types are known as common, specific and error variances (Kaas and Tinsley, 1979). Common variance is that portion of a variable's variance that is common to at least one other variable. Communality of a variable is understood as the amount of the common variance in that variable. This communality of one variable with another variable is sought when factoring variables (Kaas and Tinsley, 1979).

The other two variances, may be intentionally or unintentionally factored with the

variable's common variance. Specific variance is that portion of a variable's reliably measured variance. Error variance is the variance unique to the variable that is not reliably measured (Kaas and Tinsley, 1979). Usually, when using factoring techniques, investigators are not interested in including the error and specific variances.

When performing descriptive exploratory factor analysis, MINRES, principal components or principal axis factor analyses may be chosen (Kaas and Tinsley, 1979). MINRES solutions are based upon the non-diagonal coefficients in the correlation matrix. However, this procedure is not an option under SPSS/PC 4.0 (Norusis, 1990). For this study portion, principal axis factoring was chosen instead of principal components because PAF factors variables based on their common variance only (Kaas and Tinsley, 1979).

After the factor analysis of the data is completed, the variables making-up each factor are tested for reliability. Reliability analysis using Cronbach's Alpha is performed to estimate the reliability of a scale composed of the variables loading onto each factor.

Finally, the factor scales for each case are constructed. Factor scale construction involves creating a new variable identified by the variables making up that factor. The value for the new factor variable is the sum the values from each variable making up the factor divided by the number of variables. After factor scale construction is completed for each factor category, the data is ready for cluster analysis. Cluster analysis groups the cases based on the factor scale scores.

Using SPSS/PC+4.0, principal axis factor analysis was followed by a varimax rotation on the coded responses from step one. A sort and blank (0.4) command was

included in the PAF analysis commands. These last two commands direct the statistical package to group the variables into the factors and show the variable's factor loading values. No loading value is shown for variables loading below the 0.4 cutoff level.

The PAF factor analysis yielded four factors with Eigenvalues greater than 1.0. These four factors explained 64.9% of the common variance in the seventeen expected benefit items. The resulting factors and the variables loading into each factor are shown in Table 1.

Table 1. Original Factor loadings for the experience benefit variables.

Variable	Factor 1	Factor 2	Factor 3	Factor 4
NAT_SET	.80483			
TRANQUIL	.74527			
SMELLS	.72145			
OBSERVE	.67985			
UNDSTAND	.58922			.47312
REDUCE		.76068		
ESCAPE		.68820		
SOLITUDE		.59085		
PACE		.54813		
DECIDE			.81072	
CHANCE			.56360	
CONTROL	.41785		.49107	
CREATIVE			.44689	
BE_WITH				.61459
LRN_NAT	.53166			.53314
COMPANIO				.43851
WITH_OTH				.41354

Three expected benefit variables *understand, control* and *learn nature* loaded on more than one factor with a loading value above 0.4. For the expected benefit variable *understand*, a factor loading of .58922 was highest on factor one. The factor loading for *understand* on factor four was less at .47312. This variable was placed in factor one.

The variable *control* loaded on both factor two and factor three. If the variable *control* is placed in factor two, the reliability for factor two remains essentially the same with or without this variable. If the variable *control* is placed in factor three, the reliability of factor three increases. Also, the other expected benefit variables that loaded on factor three are conceptually similar to the variable *control*. Therefore, this variable was placed in factor three.

The variable *learn nature* loaded on both factor one and factor four. If *learn nature* is removed from factor one, the reliability for factor one remains the same. However, this variable is conceptually most similar to the other expected benefit variables that loaded on factor one. When *learn nature* is placed in factor four, the reliability for that factor increases but places *learn nature* with variables having dissimilar characteristics. Placement of *learn nature* into factor one was chosen because of its conceptual association. Table 2 (on the next page) shows the variables for each factor and the resulting scale's Cronbach's Alpha.

Factor Scale Construction

After deciding the placement of the variables, each factor was named. Factor names resulted from the characteristics of the variables within each factor. Each new factor scale resulted from totaling the values from all of the variables loading above 0.4 making up that factor and dividing this total by the number of variables. The variables making up factor one dealt with nature or learning nature. The variable was named *nature one* because another factor in the dataset was named *nature*. Different variables in the dataset cannot contain the same name. Thus, naming the new variable *nature-one* kept a variable name based upon the characteristics making up the factor but, did not duplicate another variable name. Factor two variables dealt with escaping the pressures

of life and became *getaway*. Variables making up the third factor consisted of characteristics leading toward personal development or achievement and thus, named *personal development*. The last factor dealt with companionship and being with family or friends and was titled *affiliation*. The resulting factor names and the variable statements are shown in Table 2.

Table 2. The expected benefit statements making up each factor and Cronbach's reliability coefficients for the factor scale are presented.

Factor Name	Item	Scale Reliability
Nature-One		.8895
	to be in a natural setting.	
	to experience tranquility here.	
	to enjoy the smells and sounds of nature.	
	to observe the scenic beauty.	
	to understand the natural world better.	
	to learn more about nature.	
Getaway		.8698
	to help reduce or release built-up tensions.	
	to escape the daily responsibilities of life for awhile.	
	for the solitude.	
	so my mind could move at a slower pace.	
Personal-Development		.7557
	to be at a place where I can make my own decisions.	
	for a chance to be on my own.	
	for a chance to have control over things.	
	so I could be creative such as sketch, take photos and etc.	
Affiliation		.5616
	to be with and observe other people using the area.	
	so I could do things with my companions.	
	to be with others who enjoy the same things as I do.	

Cluster Analysis

The last step requires the clustering of the respondents into similar (homogeneous) groups using the four expected benefit scales. Cluster analysis identifies

the benefit segment groups. A k-means non-hierarchical procedure was used because it was the only one available. In this cluster analysis procedure, a basic requirement is to specify the number of clusters desired. For each case, the factor scale scores are compared for nearness or similarity with scores from the other cases. Based upon the number of clusters specified, clusters are formed by placing closely fitting case scores together into groups. Each case is placed into one and only one cluster. When the cluster analysis procedure is finished, the mean scores for each factor from each cluster group are represented in a cluster table. The cluster's mean scores, show the degree of importance a group places on that factor scale variable.

As earlier stated, the number of clusters desired must be chosen before the cluster analysis. Those cluster stopping rules available (Overall, Gibson and Novy, 1993; Fraboni and Cooper, 1989 and Milligan and Cooper, 1985) deal with hierarchical cluster analysis. Hierarchical clustering usually deals with hypothesis testing and usually the approximate number of clusters is known before hand. In exploratory studies using non-hierarchical procedures, the correct number of clusters is not known before performing cluster analysis. Also, stopping rules for non-hierarchical procedures are not clearly stated in the literature available.

To identify the appropriate number of clusters, this study used the following approach: the between means and within means distances for each number of clusters were graphed. For each number of cluster centers, the within group mean distance and the between group mean distance are plotted. At the cluster size where one of these

means' graph line shows significant change, the appropriate number of clusters is suggested.

Using the SPSS/PC 4.0 quick cluster method, cluster analysis was done for cluster sizes of three, four, five and six clusters. After each cluster analysis was completed, the different cluster groups from each analysis were reviewed to identify which factor scale variables were most important in each cluster segment. Table 3 shows the different cluster sizes and the importance of the benefit variables for each group within each cluster.

Table 3. Cluster groups and variable means are shown for each cluster size.

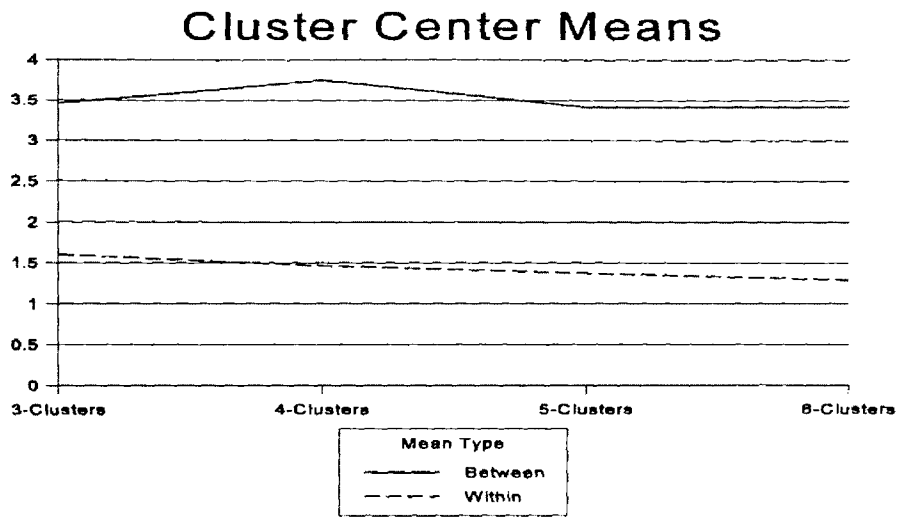
	Variables				
CLUSTER #	NATURE1	GETAWAY	PERSDEVL	AFFILIAT	PROB.
Group Type (Number of Cases)					
3-CLUSTERS					
Natur-Affiliate (187 Cases)	3.416	1.469	1.329	2.784	.000
Natur-Escapists (148 Cases)	4.749	3.500	2.118	3.226	.000
Enthusiasts (44 Cases)	5.236	5.000	4.205	4.000	.000
4-CLUSTERS					
Naturalists (124 Cases)	4.813	3.881	2.379	3.314	.000
Natur-Affiliate (160 Cases)	4.161	1.788	1.452	3.080	.000
Passive-Players (63 Cases)	2.235	1.270	1.202	2.132	.000
Enthusiasts (32 Cases)	5.317	5.111	4.528	4.300	.000

Table 3. Cluster Groups and variable means for each cluster size continued.

	Variables				
	NATURE1	GETAWAY	PERSDEVL	AFFILIAT	Prob.
5-CLUSTERS					
Natur-Affil I (84 Cases)	3.569	1.720	1.290	3.719	.000
Natur-Affil II (87 Cases)	4.628	1.871	1.660	2.430	.000
Naturalists (117 Cases)	4.786	3.924	2.344	3.403	.000
Enthusiasts (33 Cases)	5.354	5.052	4.474	4.233	.000
Passive-Players (58 Cases)	2.299	1.285	1.216	1.966	.000
6-CLUSTERS					
Natur-Affil I (86 Cases)	3.401	1.577	1.268	3.510	.000
Naturalists (85 Cases)	4.776	3.615	1.781	4.020	.000
Enthusiasts I (27 Cases)	5.469	5.052	4.500	4.597	.000
Enthusiasts II (58 Cases)	4.718	4.022	3.205	2.433	.000
Natur-Affil II (79 Cases)	4.568	1.766	1.560	2.363	.000
Passive Players (44 Cases)	2.068	1.267	1.210	1.833	.000

Figure 1 shows the between cluster and within cluster distances for the different cluster sizes. The between group mean rose from cluster three to cluster four and dropped from cluster four to cluster five. This solution suggested four cluster centers as the correct amount. Another indicator of four cluster groups is that by increasing cluster centers past four, no new visitor types are found (See Table 3). Therefore, four cluster groups are used in the balance of this study.

Figure 1 .Group Mean distances and Within Group Mean Distances by the number of clusters.



Final Data Preparation

After deciding that four was the appropriate number of cluster sets, value labels (names) for each cluster type were identified. When the clustering procedure finished, a variable identifying the cluster membership was developed. Segment One was termed the *Naturalists* group and comprised 32.5% of the cases. This group placed high importance on the nature domain and to lesser extent on benefits for escape and affiliation. Segment Two is termed the *Nature-Affiliationists* and included 42.2% of the sample. Members in this segment placed high importance on the nature and affiliation domains, suggesting this group enjoys outdoor activities with family or friends. Group Three was termed *Passive-Players* and included 16.8% of the sample. These individuals placed little importance on any of the expected benefits, suggesting these viewers viewed out of

curiosity or hearsay. Segment four is termed *Enthusiasts* (8.5% of the sample) because these individuals scored high on all four factors, suggesting they were interested in many different aspects of the viewing experience.

Factor Analysis on Animal Attitudes

Twenty-two Kellert animal attitude variables were factored (Kellert, n.d.). This analysis detects the possibility of placing the animal attitude variables into smaller groups containing similar variables. With so many variables, a factor analysis might yield fewer variables to statistically work with. However, the factored variables should retain the pertinent information given by the respondents.

Coding

Respondents were asked to respond to twenty-two statements based upon seven of the ten animal domains developed by Kellert (see Chapter 2). Coding of the responses was based on the respondent's level of agreement toward statements about bald eagles and other animals or the animals' habitat. The respondent could choose from strongly agree (coded 1) to strongly disagree (coded 4) or no opinion formed (coded 5).

Before performing factor analysis, values in the no opinion formed category required recoding. About 1 percent of the data contained missing values and about 5 percent of the data had been coded with a five for a no opinion formed response. Leaving the no opinion formed data in its original form would skew the animal attitude data to the high end of the scale. Tabachnick and Fidell (1983) warn that tables with skewness or

variables with outlying values may produce artificially high correlations. They also warn that the algorithms used by several multivariate programs may inaccurately compute values in the correlation matrix. Inaccurately computed values can occur when some of the variables have means that are large numbers and standard deviations that are small (Tabachnick and Fidell, 1983).

Several treatments for missing data are offered by Trabachnick and Fidell (1983). First, the researcher can treat missing data as data. It is possible that a respondent's failure to answer a question or to cooperate with the research could be a very good predictor of the behavior of interest. To make such a test, a dummy variable can be created and assigned a zero for missing data and a one for variables containing data. By coupling the dummy variable with a variable containing a mean value used to replace the missing value, the presence of missing data can be investigated as a predictor without distorting the central tendency of the variable itself (Tabachnick and Fidell, 1983). The dummy variable would identify cases with variables containing a replaced mean value and results from replaced mean variables can be compared with other independent variables. Thus, the liability of missing data may become an asset.

A second treatment for missing values is to drop any cases or variables containing missing values (Tabachnick and Fidell, 1983). The procedure is referred to as listwise deletion of data. This procedure may be acceptable in a large data set provided there are only a few cases with missing values. The procedure is also acceptable when missing values are concentrated in a few variables not critical to the analysis. If the missing cases are scattered throughout the data, dropping cases may result in a large reduction of

variables or cases. Many researchers are reluctant to drop data from a study.

Third, the data may be may also deleted pairwise. For example, when a variable in one case is compared to a similar variable in another case, any cases containing missing data for the variable studied are not compared. In other words, the pair is dropped. Pairwise deletion produces changes in the number of case variables compared based upon the number of data set variables containing missing values. Tabachnick and Fidell (1983) state with a changing number of cases compared, some correlations will be less stable than others in the same correlation matrix.

Values for missing data may also be estimated by the researcher's prior knowledge. For example, the researcher might be able to predict a value above or below the median or, the researcher may estimate a value one or two standard deviations from the mean. Tabachnick and Fidell (1983) state that insertion of educated guesses in large data sets containing few missing values will not distort a multivariate solution. Another researcher's estimate for missing data is to insert mean values. This procedure is conservative and no guesses are made. The disadvantage here is that correlation between a mean inserted variable and other similar variables will be lowered (closer to zero). In other words, when measuring variables containing values close to the mean with values containing the mean little difference among the variables can be detected because the variance is artificially reduced.

Lastly, the same authors recommend use of multiple regression to predict missing values. Independent variables, without missing values, are used as predictor variables to write a regression equation to predict a value for a variable containing missing data. This

procedure has more objectivity for determining missing values as compared to a researcher's estimate for a missing value. However, the determination of good predictor independent variables is required to produce a reasonable value for the missing value variable (Tabachnick and Fidell, 1983).

For this study, the no opinion formed responses required recoding to a value at or near the midpoint between moderately agree and moderately disagree. Moderately agree responses were coded two and moderately disagree responses were coded three. It was assumed the missing values could be viewed similarly to the no opinion formed responses because neither response contained an opinion. Since both responses contained no answers, it was decided to recode the missing values along with the no opinion formed values. This decision was made for increased stability among the correlations in the correlation matrix. Also, it was perceived those respondents stating no opinion formed or who failed to answer the question were probably different from those who did.

To provide for a more normal distribution among respondents, the frequency of answers for each variable was studied. For an animal attitude variable containing mostly responses of ones or twos, the recoded variables were coded three. For animal attitude variables containing mostly threes or fours, the recoded variables were coded two.

This method achieved three results. The number of cases studied was always the same. Recoded variables were placed near the center of the data distribution. Thus, the skewness of the no opinion formed data was reduced and the data was more normal and evenly distributed. Finally, sometimes actual scores will be lower and sometimes actual

scores will be higher. Overall, this method should tend to cancel out any errors introduced rather than biasing them.

For each attitude domain, some statements were stated to reflect strong agreement and some were stated to reflect strong disagreement. To achieve equal orientation among all responses in each domain, each question was reviewed. Those statements reflecting strong disagreement were recoded. This procedure made the strong disagreement responses similar to the strong agreement responses. This was done to give all statements the same orientation for comparison with other similar domain variables. Also, the reader can more easily interpret the results if all animal attitudes are viewed from the same perspective. Nine variables required recoding. At this point, the data was ready for factor analysis.

Factor Analysis

Using SPSS/PC 4.0, a factor analysis of the animal attitude variables using principal axis factoring (PAF) with varimax rotation was conducted. Sort and cut-off 0.4 rules were also applied. This factor analysis yielded five factors with Eigenvalues greater than one. These five factors explained 42.2 percent of the variance among the variables. Results from the PAF analysis were different from those expected. The number of factors extracted (five) was less than expected. Before factor analysis, respondents had evaluated statements from seven animal attitude domains. Table 4 shows the number of factors anticipated and the variables loading on each factor. Two factors contained

Table 4. This table indicates the anticipated animal attitude variable loadings for each factor before factor analysis. Variables having a 2 behind them have been recoded for orientation.

	FACTOR						
VARIABLES	Util-Hab	Scientistic	Ecologistic	Aesthetic	Humanistic	Moralistic	Naturalistic
Approve	XXX						
Vanish2	XXX						
Wetland	XXX						
Pesticide	XXX						
Taxonomy		XXX					
Bored		XXX					
Evolute		XXX					
Different-animal			XXX				
Ecology			XXX				
Creature			XXX				
Symbolize				XXX			
Choice				XXX			
Exciting				XXX			
Love					XXX		
Satisfaction					XXX		
Consider					XXX		
Hunting						XXX	
Harvest						XXX	
Nothing						XXX	
Lion							XXX
Desire							XXX
Walking2							XXX

variables from several animal attitude domains. Also, five variables had not met the 0.4 factor loading cutoff criteria and thus, showed no factor loading values.

Additional analysis based on principal components (PC) analysis was performed to learn if PC analysis might yield different results. The variables were factored using principal components analysis with varimax rotation and the previous sort and cutoff rules applied. This analysis also produced five factors with Eigenvalues explaining 54.2 percent of the variance. Results for the number of factors (five) were similar to the PAF analysis (Table 5). However, all of the variables loaded above the 0.4 factor cutoff. One variable loaded into factors one and three. This PC factor analysis yielded better results than the PAF analysis.

Factor Scale Construction

In factor one, all of the *scientistic* domain variables loaded with two each of the *ecologistic* and *naturalistic* animal attitude domain variables. These three domains emphasize the interrelationship of a species in ecosystems and the dependencies of animals with their habitat. Attitudes within the *scientistic* domain are concerned with the biology and physical characteristics of animals. *Scientistic* domain attitudes emphasize animals as sources of curiosity, study and observation. *Naturalistic* domain attitudes primarily show interest and affection for wildlife and the outdoors. Attitudes in the *ecologistic* domain place more emphasis on an intellectual understanding of nature than the *naturalistic* domain (Kellert, 1980a). *Ecologistic* interests are in the environment as a system and the interrelationships of animals. All three domains are closely related.

Table 5 The original factor loadings using Principal Components Analysis for the Kellert Animal attitude domain variables.

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Domain
BORED	.75093					Scientistic
DIFF_ANI	.73732					Ecologistic
EVOLUTE	.70446					Scientistic
ECOLOGY	.67062					Ecologistic
TAXONOMY	.61055					Scientistic
WALKING	.53561					Naturalistic
DESIRE	.47977		-.40019			Naturalistic
APPROVE		-.74488				Utilitarian-Habitat
WETLAND		-.71725				Utilitarian-Habitat
VANISH2		-.71016				Utilitarian-Habitat
PESTICIDE		-.54044				Utilitarian-Habitat
CREATURE		.50731				Ecologistic
LION		.43038				Naturalistic
CHOICE			.78916			Aesthetic
EXCITING			.76497			Aesthetic
SYMBOLIZE			.41520			Aesthetic
LOVE				.81217		Humanistic
SATISFAC				.79808		Humanistic
CONSIDR2				.42538		Humanistic
HARVEST					.80172	Moralistic
HUNTING					.78815	Moralistic
NOTHING					.49785	Moralistic

Reliability analysis procedures using Cronbach's alpha were computed on the scales developed from the factors extracted with principal components analysis. In general, the reliability found in the animal attitude data was lower than the factor reliability found in the expected benefit data. To increase factor reliability, five of the animal attitude variables were dropped.

Variables loading into factor one consisted of the *scientistic*, *naturalistic*, and *ecologistic* animal attitude domains discussed previously. The variable *desire* loaded on both factors one and three. Due to its characteristic similarity with variables in factor one and the reliability coefficient value this variable provides to factor one, the variable *desire* was placed in factor one (Table 6).

All *utilitarian-habitat* domain attitude variables loaded into factor two. One variable each from the *ecologistic* (*creature*) and *naturalistic* (*lion*) domains also loaded into factor two. Reliability analysis indicated that by dropping these *naturalistic* and *ecologistic* variables from this factor, the factor's reliability would change .10 to .75. The *ecologistic* and *naturalistic* variables were dropped from this factor. Nothing further was done to this factor category until the factor scales were computed.

In factor three, the variables loading into the factor were from the *aesthetic* attitude domain. However, the *aesthetic* variable *symbolize* was dropped to increase factor reliability. By dropping the variable, factor reliability was increased from .58 to .65. The variables loading into factor four were variables from the *humanistic* domain. For factor five, all variables were from the *moralistic* animal attitude domain. To increase the reliability for these factors, one variable from each factor was excluded. In

factor four, the variable *considr2* was dropped. The same was done in factor five where the variable *nothing* was dropped. For factors three through five, each factor contained two variables. Factor three consisted of *aesthetic* domain variables. Factor four consisted of *humanistic* domain variables and factor five contained *moralistic* domain variables.

Table 6. Factor loadings for the Kellert animal attitude domian variables and Cronbach's Alpha reliability coefficients for each factor group.

	Domain				
Variable	Scientistic-Ecologistic-Naturalistic	Utilitarian-Habitat	Aesthetic	Humanistic	Moralistic
BORED	.75093				
DIFF_ANI	.73732				
EVOLUTE	.70446				
ECOLOGY	.67062				
TAXONOMY	.61055				
WALKING	.53561				
DESIRE	.47977				
APPROVE		-.74488			
WETLAND		-.71725			
VANISH2		-.71016			
PESTICID		-.54044			
CHOICE			.78916		
EXCITING			.76497		
LOVE				.81217	
SATISFAC				.79808	
HARVEST					.80172
HUNTING2					.78815
Scale Reliability	.8109	.7450	.6540	.7733	.6322

After deciding the animal attitude variables for each factor, a factor scale for each factor was constructed. Each factor identifying name was chosen by the characteristics of the variables making up that factor. For each respondent, a factor scale score for each factor was computed by using the additive sum of the importance ratings and dividing the number of items on the scale. The names in factor order are *scientistic-ecologistic-naturalistic*, *utilitarian-habitat*, *aesthetic*, *humanistic*, and *moralistic*. At this point, factor analysis for all of the attitudes was complete.

Chapter 5

RESULTS

Study results are reported in the following sections. Demographic data is reported under the heading of visitor characteristics. Next the visitor group, group size and trip characteristics are reported in the visit and trip characteristics section. Visitors' opinions about current rules and regulations or potential changes to rules and regulations are reported in the next section. Eagle knowledge and learning resulting from the eagle viewing visit are explained in the fifth section of this chapter. Group spending habits and economic results for the Helena area are reported in the visitation and economic results section of this chapter. Lastly, the various visitor segment's animal attitudes are explained in the animal attitude section of this study.

Visitor Characteristics

Analysis of the demographic data, revealed few significant differences among the segments. Gender representation for the entire study population was nearly equal. Males represented 52 percent and females represented 48 percent. Study population ages ranged from eighteen to eighty-three. Male ages ranged from twenty-two to eighty-three. Female ages ranged from eighteen to eighty. As indicated in table 7, the mean ages for the segment groups ranged from 44 to 49. Naturalists were the youngest and Passive-Players the oldest. However, nothing significant was found here.

Table 7. Mean age by benefit segment.

	Segment				
	Naturalist (N=124)	Nature-Affiliation (N=159)	Passive-Players (N=61)	Enthusiasts (N=32)	Signif.
AGE	44.2	47.7	49.0	46.1	.130
Standard Deviation	13.900	15.549	14.648	17.600	

Most respondents came from population centers of five thousand to fifty thousand people (Table 8), and most were from Montana where few population centers containing more than fifty thousand people exist. It is interesting to note, the largest number of visitors coming from population centers of over one million were from the Enthusiast segment. However, respondents came from twenty-eight states. No visitors from foreign countries were included or sampled in this study.

Table 8. Residence area size by benefit segment in percent.

	Segment			
	Naturalist (N=123)	Nature-Affiliation (N=160)	Passive-Players (N=62)	Enthusiast (N=32)
Population Category				
Over 1,000,000	3.3%	2.5%	3.2%	15.6%
250,000 to 1,000,000	4.1%	1.3%	0.0%	3.1%
50,000 to 250,000	16.3%	19.4%	16.1%	6.3%
5,000 to 50,000	57.7%	48.1%	62.9%	46.9%
1,000 to 5,000	7.3%	7.5%	6.5%	9.4%
Rural	7.3%	16.9%	9.7%	15.6%
Farm or Ranch	4.1%	4.4%	1.6%	3.1%

Chi-Square	Value	DF	Significance
	28.623	18	.053

All groups reported high levels of education attainment (Table 9). Generally, Naturalists indicated the least amount of education. About 22 percent of the Naturalists stated high school or vocational school as the highest education level.

Table 9. Education levels by benefit segment in percent.

	Segment			
Value	Naturalist (N=124)	Nature-Affiliation (N=160)	Passive-Players (N=62)	Enthusiast (N=32)
Grade School	0.0%	1.3%	1.6%	0.0%
High School	19.4%	15.0%	17.7%	15.6%
Vocational School	2.4%	3.1%	0.0%	3.1%
Some College	26.6%	20.6%	17.7%	28.1%
College Graduate	24.2%	30.6%	32.2%	25.0%
Post Graduate Studies	27.4%	29.4%	30.6%	28.1%

Chi-Square	Value	DF	Significance
	8.854	15	.885

Respondents were asked their occupation (Table 10). With many respondents from all segments indicating high levels of education, there is no surprise in finding many professionals and manager/administrators. Retirees were common among all visitor segments. Naturalists usually were professionals, manager/ administrators, service workers or retired. Nature-Affiliationists often were professionals, service workers, homemakers or retired. Usually, Passive-Players were professionals, manager/administrators or retired. Enthusiasts were mostly professionals, clerical office employees, students or retired.

Table 10. Occupations by benefit segment in percent.

Value	Naturalist (N=122)	Segment Nature-Affiliation (N=158)	Passive-Players (N=63)	Enthusiast (N=32)
Professional	21.3%	30.4%	28.6%	28.1%
Manager/ Administrator	18.9%	7.0%	9.5%	6.3%
Sales Worker	5.7%	2.5%	3.2%	6.3%
Clerical/ Office Worker	4.1%	2.5%	7.9%	12.5%
Craftsman	6.6%	2.5%	1.6%	6.3%
Operatives	2.5%	1.9%	3.2%	0.0%
Transportation	0.8%	1.9%	1.6%	0.0%
Laborer	0.0%	0.6%	3.2%	0.0%
Farm or Ranch Owner/Manager	0.0%	0.6%	0.0%	0.0%
Farm or Ranch Laborer	0.8%	0.0%	0.0%	0.0%
Service Worker	11.5%	11.4%	4.8%	0.0%
Student	3.3%	2.5%	1.6%	12.5%
Homemaker	4.1%	10.8%	6.3%	0.0%
Retired	19.7%	23.4%	28.6%	28.1%
Armed Services	0.0%	1.3%	0.0%	0.0%
Unemployed	0.8%	0.6%	0.0%	0.0%

Chi-Square	Value	DF	Significance
	63.366	45	.037

For all groups, the most often indicated income ranges (Table 11) were between $20,000 and $40,000. Enthusiasts had the most even spread among the income categories. Passive-Players most often indicated the highest incomes.

Table 11. Income values by benefit segment in percent.

	Segment			
Value	Naturalist (N=119)	Nature-Affiliation (N=150)	Passive-Players (N=58)	Enthusiast (N=32)
Under $10,000	5.0%	2.7%	1.7%	9.4%
$10,000 to $20,000	14.3%	14.0%	12.1%	15.6%
$20,000 to $30,000	29.4%	21.3%	19.0%	18.8%
$30,000 to $40,000	17.6%	17.3%	22.4%	21.9%
$40,000 to $50,000	16.8%	14.7%	8.6%	15.6%
$50,000 to $75,000	11.8%	19.3%	20.7%	15.6%
Over $75,000	5.0%	10.7%	15.5%	3.1%

Chi-Ssquare	Value	DF	Signif.
	19.427	18	.366

Visitor's Group and Trip Characteristics

Each respondent was asked their source or sources for learning about the bald eagle concentration. The results are found in Table 12. Except Enthusiasts, each visitor segment primarily learned about the eagle concentration from the media. Passive-Players

were the highest users of the media as an information source. Enthusiasts primarily used family or friends as an information source. Visitors least likely to recall a prior visit were Passive-Players.

Table 12. Various source categories used to learn about the bald eagle concentration by benefit segment in percent. Visitors could indicate more than one source.

	Segment				
Value	Naturalist (N=124)	Nature-Affiliation (N=158)	Passive-Players (N=63)	Enthusiast (N=32)	Signif.
PREVIOUS VISITATION	20.2%	29.1%	15.9%	18.8%	.110
TELEVISION AND RADIO	31.5%	36.7%	41.3%	21.9%	.222
NEWSPAPERS AND MAGAZINES	63.7%	58.2%	60.3%	46.9%	.649
FROM FRIENDS OR RELATIVES	46.0%	42.4%	31.7%	56.3%	.111
OTHER SOURCES	4.8%	6.3%	7.9%	0.0%	.641

When contacted to take part in the study, almost two-thirds of the visitors were visiting for the first time. The results of the visitor segment responses for first-time visitation are in Table 13. Nature-Affiliationists were the segment most likely to have visited previously. However, Enthusiasts stated the largest number of previous visits.

Table 13. The mean group size by benefit segement. Also, those respondents that visited previously by benefit segment in percent and their mean number of previous visits.

Value	Segment Naturalist (N=124)	Nature-Affiliation (N=159)	Passive-Players (N=63)	Enthusiast (N=32)	Signif.
GROUP SIZE	3.5	3.8	3.7	3.1	.573
PERCENTAGE OF PREVIOUS VISITORS	33.3%	38.4%	33.3%	31.3%	.823
NUMBER OF PREVIOUS VISITS	2.1	3.8	2.4	3.9	.487

The visitor group type characteristics are explained in Table 14. About two-thirds of all groups viewed the eagles with their families. Interestingly, the Passive-Player segment had the largest percentage of "family" visitation. However, the number of people in a Nature-Affiliation group was larger. Viewers most likely watching the eagles alone were Naturalists and Enthusiasts.

Table 14. The group type by benefit segment in percent.

Value	Segment Naturalists (N=123)	Nature-Affiliation (N=159)	Passive-Players (N=63)	Enthusiast (N=32)
ALONE	8.1%	1.9%	1.6%	9.4%
FAMILY	60.5%	67.9%	71.4%	65.6%
FRIENDS	18.5%	18.9%	14.3%	18.8%
FAMILY & FRIENDS	12.1%	10.7%	12.7%	6.3%
CLUB OR ORGANIZTION	0.8%	0.6%	0.0%	0.0%
Chi-Square	Value	DF		Signif
	11.991	12		446

For all visitor groups, almost one half (Table 15) of the respondents said they viewed the eagles for one to two hours. However, over half of the passive players spent one hour or less viewing eagles. Of those viewing one hour or less, Passive-Players were significantly different from Naturalists and Enthusiasts. The Enthusiasts generally viewed eagles longer than the other groups.

Table 15. Viewing time by category and benefit segments in percent.

	Segment			
Value	Naturalist (N=123)	Nature-Affiliation (N=159)	Passive-Players (N=63)	Enthusiast (N=32)
LESS THAN ONE HOUR	33.3%	39.0%	50.8%	34.4%
ONE TO TWO HOURS	51.2%	52.2%	41.3%	37.5%
TWO TO FOUR HOURS	13.0%	8.2%	6.3%	15.6%
MORE THAN FOUR HOURS	2.4%	0.6%	1.6%	12.5%

Chi-Ssquare	Value	DF	Signif.
	24.948	9	.003

Nearly all of the respondents (96%) viewed the eagles from the Riverside Viewing Area. Results for all segments and the areas viewed are in Table 16. Riverside Viewing Area was visited by all Enthusiasts. Both Naturalists and Enthusiasts equally attended viewing areas around Hauser Dam. Passive-Players and Nature-Affiliationists equally

attended Canyon Ferry Visitor Center as the most frequent users of that site. Surprisingly, Enthusiasts attended the Canyon Ferry Visitor Center least.

Table 16. The areas visited by benefit segment in percent.

	Segment				
Value	Naturalist (N=121)	Nature-Affiliation (N=158)	Passive-Players (N=63)	Enthusiast (N=32)	Chi-Sq.
RIVERSIDE VIEWING AREA	97.5%	95.6%	92.1%	100.0%	.197
YORK BRIDGE	31.4%	25.9%	12.7%	21.9%	.179
AREAS AROUND HAUSER DAM AND LAKE	22.3%	18.4%	6.3%	21.9%	.170
CANYON FERRY VISITOR CENTER	52.1%	56.3%	57.1%	46.9%	.822

Most visitors brought some form of equipment (Table 17) to enhance viewing of the eagles. Those least likely to bring any type of viewing equipment were the Passive-Players. While Enthusiasts brought spotting scopes, none brought a camcorder to record their eagle viewing.

Table 17. Viewing equipment carried by category and benefit segment in percent. More than one type of equipment could be indicated.

	Segment				
Value	Naturalist (N=123)	Nature-Affiliation (N=159)	Passive-Players (N=63)	Enthusiast (N=32)	Chi-Sq.
GROUP BROUGHT VIEWING EQUIP.	86.2%	88.1%	84.1%	87.5%	.562
BINOCULARS	83.6%	88.2%	82.0%	87.1%	.717
SPOTTING SCOPE	13.9%	13.9%	18.0%	25.8%	.346
CAMERA WITH TELEPHOTO LENS	41.8%	37.1%	26.2%	35.5%	.233
CAMCORDER	3.3%	3.3%	1.6%	0.0%	.821

Respondents were asked their feelings about the presence of other viewers and other viewer's activities (Table 18A). Answers concerning the numbers of other visitors encountered while eagle viewing ranged from none to over five hundred. The mode for both the Naturalists and Nature-Affiliation groups was twenty. For Passive-Players, the average was bimodal at thirty people or forty people. For enthusiasts, the mode was seventy-five.

Table 18A. The mean number of other visitors seen in percent by benefit segment.

	Segment				
Value	Naturalist (N=124)	Nature-Affiliation (N=158)	Passive-Players (N=63)	Enthusiast (N=32)	Prob.
NUMBER OF OTHER VISITORS	43.5	39.3	42.0	34.1	.743

When asked their feelings about the number of other viewers (Table 18B), all groups responded similarly. All groups stated; the number present did not matter or the number of others was about right. Enthusiasts least felt the number present did not matter.

Table 18B. Respondent's feeling about the number of other visitors in percent by segment.

	Segment			
Value	Naturalist (N=123)	Nature-Affiliation (N=156)	Passive-Players (N=62)	Enthusiast (N=32)
SAW FAR TOO FEW	0.8%	0.6%	0.0%	3.1%
SAW TOO FEW	4.2%	9.6%	3.2%	6.3%
ABOUT RIGHT	41.6%	31.4%	24.2%	43.8%
SAW TOO MANY	5.8%	5.1%	6.5%	6.3%
SAW FAR TOO MANY	4.9%	1.3%	3.2%	3.1%
DID NOT MATTER	39.9%	51.3%	61.3%	34.4%
DO NOT REMEMBER	2.6%	0.6%	1.6%	3.1%

Chi-Ssquare	Value	DF	Signif.
	24.800	21	.256

Each respondent was questioned about human caused sound (Table 19). Few passive players and enthusiasts heard any human caused sound. For those hearing human caused sounds, Naturalists doubled the number of Passive-Players or Enthusiasts and were different from the other segments. Respondents' feelings about human sounds were

mixed. Nearly half of the respondents were not disturbed by human sounds. As expected, the Naturalists were the most disturbed by human sounds. More respondents from the Passive-Players segment stated the sounds did not matter than the respondents from all the other groups combined.

Table 19. Respondents hearing human caused sounds and thier feelings by benefit segment in percent.

	Segment				
Value	Naturalist (N=124)	Nature-Affiliation (N=157)	Passive-Players (N=63)	Enthusiast (N=32)	Chi-Sq.
VISITORS HEARING HUMAN SOUNDS	51.6%	43.9%	31.7%	34.4%	.0356
VISITOR'S FEELINGS:					
NOT DISTURBED	48.4%	55.1%	45.0%	63.6%	
WAS DISTURBED	26.6%	21.7%	15.0%	18.2%	
DID NOT MATTER	14.1%	15.9%	40.0%	9.1%	
DO NOT REMEMBER	10.9%	7.2%	0.0%	9.1%	

Chi-Ssquare	Value	DF	Signif.
	10.894	9	.283

Respondents were asked their feelings about the number of vehicles at the viewing area and others' vehicle entrance speed (Table 20). Most respondents from all segments replied that the vehicle numbers and the entrance speeds were about right. Many also stated the number of vehicles and their entrance speeds went unnoticed.

Passive-Players were the least attentive to vehicles and the entrance vehicle speeds. Enthusiasts replied much differently than the other segments in the category the number of other's vehicles did not matter.

Table 20. Respondent's feelings about the number of other's vehicles by benefit segment in percent.

	Segment			
Value	Naturalist (N=123)	Nature-Affiliation (N=159)	Passive-Players (N=63)	Enthusiast (N=32)
SAW FAR TOO FEW	0.8%	3.1%	0.0%	3.1%
SAW TOO FEW	4.1%	6.3%	4.2%	9.4%
ABOUT RIGHT	35.0%	34.6%	19.0%	46.9%
SAW TOO MANY	8.9%	5.0%	6.3%	6.3%
SAW FAR TOO MANY	4.9%	0.6%	3.2%	3.1%
DID NOT MATTER	43.9%	49.7%	65.1%	28.1%
DO NOT REMEMBER	2.4%	0.6%	1.6%	3.1%

Chi-Ssquare	Value	DF	Signif.
	26.262	18	.094

Visitation and Economic Results

Respondents were asked to report their advance planning for viewing the eagles (Table 21). Naturalists and Passive-Players spent the least amount of planning time and most often visiting the same day. Enthusiasts spent the most time making long term

plans. Nature-Affiliationists spent the most time planning in the two to seven days category.

Table 21. Advance planning for the eagle visit by benefit segment in percent.

	Segment			
	Naturalist (N=124)	Nature-Affiliation (N=160)	Passive-Players (N=63)	Enthusiasts (N=32)
Value				
SAME DAY AS VISIT	30.6%	23.8%	33.3%	18.8%
DAY BEFORE VISIT	19.4%	22.5%	27.0%	25.0%
TWO TO THREE DAYS BEFORE VISIT	18.5%	21.9%	14.3%	18.8%
FOUR TO SEVEN DAYS BEFORE VISIT	16.1%	18.8%	17.5%	6.3%
TWO WEEKS BEFORE VISIT	11.3%	7.5%	3.2%	15.6%
MORE THAN TWO WEEKS BEFORE VISIT	4.0%	5.6%	4.8%	15.6%

Chi-Square	Value	DF	Signif.
	19.427	15	.195

For the entire eagle concentration period, nonresident visitors spent approximately $7,900 in the Helena area during their eagle viewing trip. Amounts spent by members of Lewis and Clark and Broadwater Counties are not included in the economic results. Table 22 contains a breakdown on the spending results by each segment.

Table 22. The mean nights spent visiting the Helena Area, and the mean spending results for various spending categories by benefit segment.

Value	Segment Naturalist (N=77)	Nature-Affiliation (N=94)	Passive-Players (N=39)	Enthusiast (N=22)	Signif.
Nights spent visiting Helena Area	.914	.786	1.029	1.579	.330
Amount spent on Lodging	$17.66	$11.99	$14.78	$10.00	.805
Amount spent on Food and Beverages	$22.93	$21.10	$24.08	$18.30	.877
Amount spent on Gas and Oil	$10.43	$ 9.78	$ 5.83	$ 8.10	.313
Amount spent on Other Purchases	$ 5.16	$ 6.12	$17.31	$ 5.25	.436
Total spent per segment group in area	$56.18	$48.99	$62.00	$41.65	.831

The largest spending category was food and beverages at $24.100. Passive-Players, the highest buyers of food and beverages, were bimodal at ten and twenty dollars. About 40 percent of the Enthusiasts stated no food or beverage purchases. Naturalists were the segment most likely to make a food or beverage purchase with 75 percent stating so.

Lodging accounted for the next highest spending category $16,400 spent by non-Helena area visitors. Four Naturalists showed spending between one hundred and two hundred fifty dollars on lodging. However, the Enthusiast segment showed the most overnight stays. The Enthusiast overnight stays are probably overstated because only nineteen Enthusiasts were not from the Helena area. One Enthusiast stated staying in Helena for nine nights.

Estimated purchases for the Gas and Oil category total $10,400. While being the highest spenders in the other categories, Passive-Players spent the least for gas and oil purchases with nearly two-thirds stating no purchase. Naturalists, nearly 60 percent, made the most gas and oil purchases.

Spending in the Other Purchases category is estimated at $7,000. One third of the Enthusiasts stated making Other Purchases expenses. Most groups spent between five and six dollars on Other Purchases. Nature-Affiliationists were the least likely to have expenses in this category.

The Other Purchases category is confounded by one person in the Passive-Players group. One Passive-Player spent five hundred dollars in this category. This purchase places the Passive-Player spending at $14.69 per group. Thus, the Passive-Players are the largest spenders in this category. If the large purchase is not included, Passive-Player spending in this category becomes $1.92. Passive-players then become the least spending segment in the Other Purchases category.

Visitor Reaction to Rules and Regulations

Over half of the total visitors were aware that special rules and regulations existed (Table 23). However, over half of the Passive-Player and Enthusiast segments suggested no knowledge or were unsure of rules and regulations. Interestingly, Nature-Affiliationists showed more knowledge about "where" and "why" rules exist than that rules and regulations exist at all. Visitors' opinions about the necessity of closures are mixed. Most Nature-Affiliationists and Enthusiasts believe the closures are necessary. Just under half of the Passive-Players reply rules and regulations are unnecessary.

Table 23. Visitor's awareness and opinions for the existance of rules and regulations by benefit segment in percentage.

	Segment				
	Naturalist (N=120)	Nature-Affiliation (N=157)	Passive-Players (N=62)	Enthusiast (N=31)	Chi-sq.
Value					
VISITOR IS AWARE RULES AND REGS. EXIST	51.7%	57.3%	46.8%	48.4%	.604
ADEQUATE INFO CONCERING WHERE CLOSURES EXIST	46.7%	57.9%	39.5%	59.0%	.268
ADEQUATE INFO CONCERNING WHY CLOSURES EXIST	39.5%	59.0%	48.6%	36.4%	.096
VISITOR'S OPINION CLOSURE IS NECESSARY	67.9%	82.2%	54.1%	77.3%	.035

Over half of the respondents felt the rules and regulations did not affect their eagle viewing. Table 24 shows the results of the visitor's feelings about rules and regulations.

It is noteworthy, 20 percent of the Naturalists felt rules and regulations "somewhat" detracted from their experience. The message is unclear when looking at the Enthusiasts. About 25 per cent of the enthusiasts said the rules and regulations greatly added to their experience. Another 20 per cent said the rules and regulations "somewhat" detracted from their experience.

Table 24. Respondent's feelings toward restrictions or closures by benefit segment in percent.

Value	Naturalist (N=81)	Segment Nature-Affiliation (N=106)	Passive-Players (N=39)	Enthusiast (N=20)
RESTRICTIONS GREATLY ADDED TO MY EXPERIENCE	11.1%	7.5%	10.3%	25.0%
RESTRICIONS SOMEWHAT ADDED TO MY EXPERIENCE	4.9%	14.2%	5.1%	0.0%
RESTRICTIONS DID NOT ADD TO NOR DETRACT FROM MY EXPERIENCE	58.0%	64.2%	61.5%	55.0%
RESTRICTIONS SOMEWHAT DETRACTED FROM MY EXPERIENCE	21.0%	10.4%	17.9%	20.0%
RESTRICTIONS GREATLY DETRACTED FROM MY EXPERIENCE	4.9%	3.8%	5.1%	0.0%
Chi-Ssquare	Value	DF		Signif.
	17.446	12		.134

In case of future increased visitation, the respondents were offered two eagle viewing alternatives (Table 25). Alternative one involved the viewers parking their automobiles away from the viewing site and walking to view the eagles. If visitors were willing to park and walk, they were asked to state the number of minutes they would

willingly walk. Most visitors stated they were willing to park and walk. Passive-Players were the least willing visitor segment to accept this alternative. Most visitors were willing to walk about fifteen minutes.

Table 25. Willingness to park elsewhere and walk to the viewing site or willing to park elsewhere and pay a transportation fee to the viewing site by benefit segment in percent.

Value	Segment Naturalist (N=122)	Nature-Affiliation (N=159)	Passive-Players (N=62)	Enthusiast (N=31)	Signif.
PARK ELSEWHERE AND WALK TO EAGLE VIEWING SITE (Percent Willing)	87.7%	86.8%	77.4%	87.1%	.258
NUMBER OF MINUTES VISITOR IS WILLING TO WALK (Minutes)	15.5	14.8	13.3	17.9	.396
PARK ELSEWHERE AND PAY FEE FOR TRANSPORTATION (Percent Willing)	35.2%	35.0%	16.1%	32.3%	.037
AMOUNT WILLING TO PAY PER INDIVIDUAL (Dollars)	$1.31	$1.19	$0.65	$1.02	.165

The second alternative involved the respondent's willingness to park elsewhere and pay for transportation to the viewing site. Those respondents willing to use this alternative were asked to state the amount this service should cost per individual. Many respondents were less willing to use this alternative. Passive-Players significantly least wanted this alternative. The mean amounts visitors were willing to pay ranged from sixty-five cents by the Passive-Players to $1.31 by the Naturalists.

Finally, visitors were asked to state their agreement with five statements about

protecting the eagles (Table 26). Visitors generally preferred eagle protection rather than protecting viewing rights. For those giving preferences to the viewers, instead of the eagles, the Passive-Players showed the highest wishes.

Table 26. Respondent's feelings about eagle protection by benefit segment in percent.

Value	Segment Naturalist (N=119)	Nature-Affiliation (N=156)	Passive-Players (N=63)	Enthusiast (N=31)
IT IS NECESSARY THAT ALL AREAS USED BY BALD EAGLES BE CLOSED TO VISITORS.	1.7%	3.2%	1.6%	3.2%
GENERALLY, IT IS PREFERABLE TO CLOSE AREAS WHERE VISITOR PRESENCE NEGATIVELY IMPACTS BALD EAGLES.	76.5%	73.7%	63.5%	71.0%
IT IS HARD TO DECIDE WHETHER AREAS SHOULD BE CLOSED OR NOT.	11.8%	9.0%	12.7%	9.7%
GENERALLY, IT IS PREFERABLE IF VISITORS ARE ALLOWED TO VIEW EAGLES WHEREVER THEY WISH.	10.1%	13.5%	15.9%	12.9%
IT IS NECESSARY THAT VISITORS BE ALLOWED TO VIEW BALD EAGLES WHEREVER THEY WISH.	0.0%	0.6%	6.3%	3.2%

Chi-Square	Value	DF	Signif.
	15.961	12	.193

Most visitors met with the Department of Fish, Wildlife and Parks personnel or their volunteers at the viewing site or at the visitor center. Passive-Players were

significantly less likely to ask questions or speak with DFWP personnel. Table 27 shows that respondents' meetings with Department of Fish, Wildlife and Parks personnel or their volunteers were helpful.

Table 27. Visitor interaction with Department of Fish, Wildlife and Parks personnel by benefit segment in percent.

	Segment				
Value	Naturalist (N=123)	Nature-Affiliation (N=160)	Passive-Players (N=63)	Enthusiast (N=31)	Signif.
VISITOR MET DPT. OF FWP PERSONNEL DURING VISIT	75.6%	75.6%	54.0%	80.6%	.004
	(N=92)	(N=120)	(N=35)	(N=25)	
DEPT. OF FWP PERSONNEL WERE HELPFUL	88.0%	87.5%	80.0%	92.0%	
VISITOR ASKED NO QUESTIONS	10.9%	10.8%	14.3%	8.0%	
DEPT. OF FWP PERSONNEL WERE NOT HELPFUL	1.1%	1.7%	5.7%	0.0%	

Chi-Square	Value	DF	Significance
	4.455	6	.615

Most visitors stated the park's personnel added to their eagle viewing experience (Table 28). Passive-Players were almost significantly different from the other visitor

segments on their feelings about the Department of Fish, Wildlife and Parks personnel and volunteers.

Table 28. Visitor's opinions on the effect of Department of Fish, wildlife and Parks personnel by benefit segment in percent.

	Segment			
	Naturalist N=94)	Nature-Affiliation (N=121)	Passive-Players (N=36)	Enthusiast (N=24)
DEPT OF FWP PERSONNEL'S AFFECT ON VISIT				
ADDED TO EXPERIENCE	81.9%	81.8%	63.9%	91.7%
DETRACTED FROM EXPERIENCE	1.1%	1.7%	8.3%	0.0%
NEITHER ADDED NOR DETRACTED	17.0%	16.5%	27.8%	8.3%

Chi-Square	Value	DF	Signif.
	12.529	6	.051

Many viewers had received prior information about the number of eagles counted every Thursday during the migration concentration. Table 29 shows the number of eagles expected for viewing and the number of eagles seen during viewing. Enthusiasts showed the highest expectations. Passive-Players had the lowest expectations. Enthusiasts also saw the most eagles during their visit. Naturalists and Passive players saw the least.

Table 29. The mean number of eagles expected prior to the eagle viewing experience and the mean number of eagles seen by benefit segment in percent.

Value	Segment Naturalist (N=123)	Nature-Affiliation (N=155)	Passive-Players (N=63)	Enthusiast (N=30)	Prob.
NUMBER OF EAGLES EXPECTED TO VIEW	59.1	54.7	49.8	65.5	.701
NUMBER OF EAGLES VIEWED	17.6	23.0	17.6	25.1	.186

Visitor Knowledge

Each respondent was asked sixteen questions concerning knowledge about eagles. This knowledge came from the viewing experience or interpretative information. All information to answer the questions was easily obtained by reading the brochure or viewing displayed information at the visitor center. Table 30 contains the results for the true-false questions. No respondent scored 100 percent correct answers. Several missed only one question.

Respondents in the Naturalist group did better than respondents in the other groups. Naturalists scored the highest percentage on five of the questions and never had the lowest scoring percentage for any question. Members of the Nature-Affiliation segment scored the highest on four questions and the lowest on two. Passive-Player responses yield mixed results. This group equaled the Naturalists by scoring the highest correct percentage on five questions. However, Passive-Players scored the least correct percentage on six questions. Enthusiasts did the poorest of all the segmented groups.

However, Enthusiasts were the segment least likely to visit the Canyon Ferry Visitor Center. This low visitor center visitation may be a possible reason for that segment's poor results.

Table 30. True-False questions and answers by benefit segment in percent.

	Segment				
STATEMENT (*Answer*)	Naturalist	Nature-Affiliation	Passive-Players	Enthusiast	Sign.
Bald eagles are an endangered species. (*True*)	69.4%	65.2%	60.3%	67.7%	.760
Bald eagles concentrate at the Riverside Viewing Area throughout the year. (*False*)	89.4%	90.0%	88.9%	84.4%	.883
Bald eagles concentrate at the Riverside Viewing Area because of the abundance of Kokanee. (*True*)	91.1%	91.1%	95.2%	87.5%	.721
Bald eagles generally arrive at the Riverside Viewing Area from the North. (*True*)	67.2%	68.1%	57.1%	56.3%	.451
Golden eagles are as numerous as bald eagles during this eagle concentration. (*False*)	51.2%	46.3%	40.3%	43.8%	.118

Table 30. True and False Questions Continued

Statement	Segment				
	Naturalist	Nature-Affiliation	Passive-Players	Enthusiast	Sign.
The salmon in the Hauser Lake were introduced by people. (*True*)	41.0%	49.7%	54.0%	40.6%	.184
The bald eagle population is generally declining. (*False*)	54.5%	58.1%	55.6%	43.8%	.442
Bald eagles generally lay one to three eggs in March or April. (*True*)	38.5%	32.7%	33.9%	46.9%	.334
Bald eagles attain maturity and their distinctive white heads and tails at age three years. (*False*)	13.0%	13.2%	9.5%	6.3%	.739
Today, there is plenty of protected habitat for nesting and wintering of bald eagles. (*False*)	1.6%	48.8%	38.1%	40.6%	.466
The wingspan of an adult bald eagle is six to seven and one half feet. (*True*)	78.0%	80.6%	76.2%	81.3%	.365

Table 30. True and False Questions Continued.

	Segment				
	Naturalist	Nature-Affiliation	Passive-Players	Enthusiasts	Sign.
An eagle may see three times better than a human. (*True*)	76.2%	75.0%	81.0%	78.1%	.615
The adult female bald eagle is up to thirty percent larger than the adult male. (*True*)	30.9%	28.3%	19.0%	21.9%	.172
The main cause for a decline in the bald eagle population was pesticides and DDT. (*True*)	69.7%	66.3%	71.4%	65.6%	.168
An eagle can spot a small animal up to one mile away. (*True*)	74.6%	67.5%	61.9%	62.5%	.643
The salmon at Hauser Lake are not native. (*True*)	48.4%	48.1%	58.7%	37.5%	.565
AVERAGE TOTAL NUMBER OF CORRECT ANSWERS FOR EACH SEGMENT	9.6	9.2	9.0	8.5	.295

Visitor Animal Attitudes

To determine visitor's animal attitudes, each respondent was asked to read twenty-

two statements about animals or animals' habitat. Each respondent was asked to state the amount of agreement or disagreement about those statements. Agreement ranged from strongly agrees (coded 1) to strongly disagrees (coded 4). If a respondent had no opinion about the statement, a response for no opinion (coded 5) was acceptable. Before factor analysis, there were at least three statements for each attitude domain. The mean for each benefit segment's animal attitude is shown in Table 31.

Table 31. The mean animal attitudes by benefit segment.

	Segment				
	Natural (N=123)	Nature-Affiliation (N=160)	Passive-Players (N=62)	Enthusiasts (N=32)	Prob.
Attitude					
Scientistic-Ecologistic-Naturalistic	2.0	2.0	2.4 (a)	1.9	.001
Utilitarian-Habitat	3.4	3.3	3.0 (b)	3.3	<.000
Aesthetic	2.0	1.9	1.8	2.2	.131
Humanistic	1.8	1.9	2.6 (a)	1.6	<.001
Moralistic	3.0 (c)	3.3	3.5	3.1	.001

(a) The Passive-Player segment is significantly lower than the other segments.

(b) The Passive-Player segment is significantly lower than the Naturalist and Nature-Affiliation segments.

(c) The Naturalists segment is significantly higher than the Nature-Affiliation and Passive-Player segments.

Most visitors are interested in *scientistic-ecologistic-naturalistic* discussions of animals and how animals fit into their environment. Enthusiasts show the strongest *scientistic-ecologistic-naturalistic* attitude toward animals. Passive-Players have the weakest attitude in this domain with many not caring about animals and how they fit into their environment. The Passive-Players were significantly lower than the other segments in their *scientistic-ecologistic-naturalistic* attitude. Surprisingly, Nature-Affiliationists and Naturalists were almost equal in their attitudes shown toward animals and their environment.

Most of the eagle viewers do not possess a *utilitarian-habitat* attitude. People who hold this attitude are concerned with the practical or material value of animals. Naturalists hold the weakest *utilitarian-habitat* attitude of any of the segments. Enthusiasts and Nature-Affiliationists are very similar to the Naturalists in their disagreement toward using animal habitat for human purposes. Passive-Players held the strongest *utilitarian-habitat* attitude. However most showed moderate disagreement with this attitude domain. The Passive-Players were significantly stronger than the Naturalists and Nature-Affiliationists in their *utilitarian-habitat* attitude.

The Nature-Affiliation and Passive-Player segments had the strongest agreement with the positive *aesthetic* domain statements. The *aesthetic* attitude domain deals primarily with interest in the artistic and symbolic characteristics of animals. Respondents from the Naturalist segments also show moderate agreement toward this attitude. Members of Enthusiast segment hold the weakest *aesthetic* domain attitudes. No groups were significantly different in the *aesthetic* domain.

Humanistic animal attitudes involve strong affection and love for animals, especially pets. The results of this attitude domain suggest Naturalists and Nature-Affiliationists moderately agree in their love of pets. Enthusiasts hold the strongest attitude toward their affection of animals. Passive-Players significantly place less love and affection on animals and pets by showing more disagreement than agreement in this domain.

People with a *moralistic* attitude have concern for the right and wrong treatment of animals, with a strong opposition for inhumane treatment or cruelty to animals. For the *moralistic* animal attitudes, all segments indicated disagreement with this attitude. Naturalists and Enthusiasts moderately disagreed with statements in this domain. Nearly half of the Passive-Players held strong disagreement with this attitude. Nature-Affiliationists followed the Passive-Players very closely in their disagreement with this attitude domain. Naturalists were significantly stronger than the Nature-Affiliationists and Passive Players in their *moralistic* attitude. Members from all groups may have construed that holding this attitude meant hunting was bad.

Members of the Enthusiast and Passive-Player segments have the largest differences in their strengths of feelings for the *scientistic-ecologistic-naturalistic*, *aesthetic*, *humanistic* and *moralistic* attitudes. The Passive-Player and Naturalist segments showed the greatest differences in their *utilitarian-habitat* attitudes. Nature-Affiliationists tended to be the most neutral benefit segment.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

Segment Findings

The results from this study show segmentation based upon the benefits visitors sought yielded four different visitor segments. These visitor segments differed in their motivations to watch eagles and in their evaluations of the eagle viewing experience. A recapitulation of differences among the segments is discussed in the following paragraphs.

Enthusiasts

Enthusiasts are highly motivated to find out about nature and escape the pressures of daily life. This segment also has the highest motivation scores for personal development and association with family and friends. Membership in this segment was the smallest at 8 percent of the visitors. Most Enthusiasts relied upon information from friends or relatives as a source of learning about the eagle concentration. These same Enthusiasts spent the most time making long-term plans preparing for their eagle viewing visit. Also, Enthusiasts spent the longest time at the eagle viewing site and was the segment that most often spoke with the Department of Fish, Wildlife and Parks personnel. However, this group did the poorest on the true-false questions. Among all segments, members of the Enthusiast segment possessed the strongest attitudes in the *scientistic-ecologistic-naturalistic* and *humanistic* animal attitude domains. This

segment also had the weakest *aesthetic* animal attitude among the segments.

Naturalists

Naturalists are similar to Enthusiasts in their recreation benefits sought, except personal development is less important to Naturalists. This segment had the youngest mean age at 44 years, showed the least amount of higher education and had the lowest incomes. Many Naturalists learned about the eagles from newspapers and magazines. Members of the Naturalist group were the segment most aware of other visitors and were the segment most sensitive to human sounds. This group least liked viewer restrictions, but showed the strongest feelings toward closing areas where human presence negatively impacts the eagles. The total mean scores on the true-false questions were the highest for Naturalists. Regarding Naturalist's animal attitudes, this group had the weakest *utilitarian- habitat* attitude among the segments. While members of all segments disagreed with the *moralistic* statements, the Naturalists showed the strongest disagreement with statements in the *moralistic* domain.

Nature-Affiliationists

The Nature-Affiliationists were the largest segment with 42% of the cases and were motivated toward nature and friendships or family ties. Nature-Affiliationists place low values on escape from daily life and personal development or achievement. Members of this segment reported the most previous experiences. View enhancing

equipment was carried most often by this segment. This segment was the one most aware that rules and regulations existed. Also, members of this segment had the highest percentage of respondents saying restrictions did not add to nor detract from their visit. Regarding opinions that closures are necessary, the Nature-Affiliationists showed the largest agreement. Members of this segment never possessed the strongest or weakest attitudes in any of the animal attitude domains studied.

Passive-Players

Passive-Players have weak attitudes toward nature and affiliation and place almost no importance on escape from daily pressures or personal development. This segment had the oldest mean age at 49 and the highest incomes. Visitors from this segment showed the largest percentage of family visitations. Respondents from this segment viewed the eagles the least amount of time but visited Canyon Ferry Visitor Center most often. Eagle viewing equipment was carried least by this segment. Those visitors least likely to speak with the Department of Fish, Wildlife and Parks personnel or their volunteers were Passive-Players. Passive-Players were least affected by the number of other visitors, other visitor's vehicles or other visitor's sounds. Visitors from the Passive-Player segment spent the least amount of time in prior visitation planning. Many Passive-Players were unaware of the existence of rules and regulations and had the least percentage of opinions that restrictions are necessary. The *aesthetic* animal attitude is the Passive-Players strongest attitude. Members in this segment possessed the

weakest *scientistic- ecologistic-naturalistic* and *humanistic* attitudes. Passive-Players were the segment reporting the most agreement with *utilitarian-habitat* statements. This segment also stated the most disagreement with *moralistic* animal attitude statements. During statistical analysis, significant differences were found between Passive-Players and members of other segments regarding the Moralistic and Humanistic animal attitudes.

From the description of the highlights describing each segment, Enthusiasts were the segment most involved in their eagle viewing experience. However, this segment showed the poorest results for the true-false questions. A possible reason is members in this segment were the least likely group to visit Canyon Ferry Visitor Center. Members of the Enthusiast segment showed high motivations for personal development and these members may prefer to learn about eagles on their own. These may be possible reasons for the poor true-false scores and the least amount of visitor center visitation.

Members in the Nature-Affiliationist segment appear most similar to an "average" visitor. Naturalists are more like the Enthusiasts but their eagle viewing motivation levels were less than those of Enthusiasts. The Naturalists, like the Enthusiasts, were more keenly aware of the rule and regulation restrictions and were concerned about human impacts to the eagles.

It appears that Passive-Players have not taken a very active role in their eagle viewing experience. Members in this segment were not very observant about the presence of other viewers and were the segment least aware of rules and restrictions.

The Passive-Players segment were most likely to visit the Canyon Ferry Visitor Center. Perhaps the reason this group went to the visitor center most was because this segment had the largest percentage of family visitation.

Concerns

Factor Analysis Results from the Kellert Attitude Domains

It is unfortunate the scientistic ecologistic and naturalistic animal attitude domains factored into the same factor. The reason these domains did not factor separately is unsure. It is possible that the respondents could not differentiate the differences in these domains from the questions asked. Another possibility is that too few questions were asked in each domain. With all of the other information sought in this study's questionnaire, it was difficult to include more than three questions for each domain.

In the questionnaire pre-test, six statements in each domain were asked of the pretest respondents. The data from the pre-test was factor analyzed and reliability analysis was performed. The questions chosen for the questionnaire were those having the highest reliability on the pre-test. If future questionnaires are to be administered with Kellert animal attitude statements, a larger number of animal attitude statements is recommended. When Stephen Kellert has administered his animal attitude studies, his questionnaires dealt mostly with animal attitude statements and demographic questions.

The Kellert study regarding American's attitudes about animals (1980a) contained more than 60 questions and took an hour to administer over the telephone.

Rules and Regulations Awareness

In 1984, a bald eagle viewer study was performed by Jeffrey Frost concerning the eagle concentration at Glacier Park (Frost, 1985). Frost's study did not segment the bald eagle visitors but, instead reported findings on the "average" visitor. Results from the Frost study indicate Glacier Park viewers had high awareness (87 percent) of the rules and regulations enforced during the eagle migration concentration. Rules and regulations awareness by Glacier Park visitors is much higher than the visitors to Riverside Viewing Area at just over 50 percent. Over 80 percent of the 1984 visitors stated they had information concerning "where" and "why" these closures existed. Viewers from the 1984 study were asked seven questions concerning their eagle and kokanee knowledge. The results from these 1984 visitors showed 74.2 percent of the visitors incorrectly answering two or fewer questions. Results from the 1984 eagle viewers create two concerns about the results from viewers in this study.

Most of the 1992 visitors have very little understanding that rules and regulations exit or "why" and "where" they exist. All visitors did poorly on the true-false questions. This indicates that current information vehicles are not adequately conveying to the visitors management's resource protection information or the interpretative information.

In the questionnaire, respondents were asked many questions concerning rules and regulations. The results from the questionnaire suggest most visitors have little common knowledge concerning the rules and regulations or "where" and "why" they exist. Except the Nature-Affiliationists, about half the respondents were aware that rules and regulations existed. About 60 percent of the Nature-Affiliationists were aware of rules and regulations. Surprisingly, Nature-Affiliationists stated more knowledge about "why" closures exist than reported awareness that closures did exist. Except Passive-Players, over two-thirds of the other segments had opinions that closures are necessary. Also, nearly two-thirds of the segments stated the rules and regulations did not adversely affect their experience.

Information must be better conveyed or other information vehicles used to provide visitor awareness of area closures and the reasons for those closures. It is recommended that signs with an area map of the closed areas and roads be placed at York Bridge, the Canyon Ferry Visitor Center and Riverside Viewing Area. Almost all of the visitors used Riverside Viewing area and visitors could read the signs during their viewing experience. Due to Riverside Viewing Area's size, at least two signs should be posted there. Another possibility for advising the visitors about the area and road closures is in the interpretative brochure. This brochure is given to the visitors as they arrive at Riverside Viewing Area.

Naturalists, Passive-Players and Nature-Affiliationists stated they learned about the eagle concentration primarily from newspapers and magazines. Many Passive-

Players also learned about the eagle concentration from television and radio. Short articles in these media sources could provide visitors information about area closures and general knowledge about the eagles.

Visitor Learning

Another concern results from the true-false questions. The respondents were not asked if they read the brochure given them at the viewing site. However, respondents were asked if they visited Canyon Ferry Visitor Center which serves as the other primary information source. The segment visiting Canyon Ferry Visitor Center most often was the Passive-Players. However, the Passive-Players had the second poorest total mean score on the true-false questions. Enthusiasts were least likely to visit Canyon Ferry Visitor Center and had the poorest total mean score on the true-false questions.

Recommendations for improving visitor knowledge are complex. For eagle viewing motivations, the Enthusiasts scored highest and Passive-Players scored the lowest. Both segments scored poorly on eagle knowledge questions. With such a contrast in viewing motivations, it is difficult to determine the proper way to better convey eagle information to these segments. Enthusiasts scored the highest on personal development motivations and in the scientistic-naturalistic-ecologistic animal attitudes. Yet, they were the segment least likely to view displays at Canyon Ferry Visitor Center and possibly gain more knowledge about the eagles and kokanee.

The areas along the river at Riverside Viewing Area are open. Another way of protecting the eagles from visitor impact is to create blinds. Interspersed among these blinds could be interpretative information boards depicting the information included in the brochure. Visitors will attend Canyon Ferry Visitor Center only if they are motivated. Perhaps, by providing more viewing site information, viewers may be motivated to gain additional eagle and kokanee knowledge at Canyon Ferry Visitor Center.

Possible Regulation Alternatives

In the questionnaire, the respondents were provided two possible alternatives concerning strategies to lessen human impact on the eagle concentration. For either alternative, the respondent was told that the physically disabled or those people requiring special assistance would be provided special compensation. The first alternative, asked respondents to state their feelings about parking their car elsewhere and then walk to Riverside Viewing Area. If the respondent was willing to park and walk, then a walking time in minutes was sought. Except Passive-Players, over 85 percent of the respondents showed willingness to park elsewhere and walk into the viewing site. For the Passive-Players, over three quarters stated a willingness for this alternative. Most respondents were willing to walk up to fifteen minutes.

The second alternative involved the visitors parking elsewhere and then ride special transportation to the viewing site. Those willing to accept this option were

asked to show the amount they would be willing to pay per individual for the transportation service. Except passive players, about one third of the respondents agreed with this option. Only 16 percent of the Passive-Players were willing to use this alternative. With so few willing to accept this alternative, it does not seem a viable option. However, the first option shows great potential should viewer numbers become large.

Other Uses of This Data

This study provides management with data based upon actual visitor group types and not an average visitor that may or may not exist. Results from the various segments provide the bald eagle management with visitors' motivations, perceptions about rule and regulation restrictions, group segment and visitor characteristics, resource knowledge, segment spending habits and animal attitudes. Finally, this study's results provide baseline data to aid in visitor management and resource protection at Riverside Viewing Area. By understanding the expectations of the visitor segments, acceptable management actions may be carried out that provide a quality experience and protect the eagles.

The study data provides baseline information showing four visitor segments viewed bald eagles at Riverside Viewing Area during the Fall of 1992. Use of this baseline information provides management with knowledge about the effectiveness of their current rules and regulations. All segments clearly show the need for and expect

rule and regulation restrictions during bald eagle viewing. This study's information provides management with the knowledge of each segment's current eagle viewing motivations and expectations. In the future, this information can show what the visitor in 1992 expected as opposed to what visitors from future studies might expect.

Future visitor segmentation studies at Riverside Viewing Area can detect differences between their current visitors and those from the 1992 study. If these future visitors are different, the visitor groups may only have changed by segment sizes. Visitor succession is another possibility future research might find. Future study visitors may be very different in their motivations for eagle viewing and replace the visitor segments found in 1992.

Use of this study provides management with a reference point concerning the effectiveness of the current rules and regulations, interpretative information and the eagle viewer's expectations. Now, management understands how each visitor segment evaluates the effectiveness of the current rules and regulations. The respondent's eagle knowledge scores suggest the viewing segments are not attentive to the current information sources. New methods of distributing this information are needed to improve in this area. Future studies can provide management with results of the effectiveness of these new methods.

Finally, management has information about each segment's attitude toward wild animals. Study in this area is new. Animal attitude study development is less than twenty years old. Information from each segment's animal attitudes can help

management in the development of interpretative information for viewing eagles or for viewing of other animals. By knowing the benefits sought and the animal attitudes each segment carries, interpretative information can be developed that appeals to members of those segments.

Future Research Questions

In this study, management's rule and regulation restrictions were not clearly understood by all of the visitor segments. Also, the segmented viewers either poorly learned or poorly retained the interpretative information made available to them. A better understanding of the information vehicles viewers use for these information types needs exploration. A future study could ask visitors those information sources they currently use and those information sources they prefer to use. Or, future studies could experiment with various information sources and determine better ways to portray information. From the information received, management could develop information vehicles that appeal to each visitor segment.

More study of people's attitudes toward animals can help all managers in management of special animal resource sites. Due to statistical limitations, one exploratory animal attitude study cannot project its results from the study population to the general population. However, if more studies incorporated the study of animal attitudes, a general understanding of the animal attitudes held by people in an area or a region can be found. This animal attitude information could provide managers with an

understanding of how to provide animal information for that area or region. If the studies were from segmented visitor populations, management would have an even better basis for providing animal information.

LITERATURE CITED

Bryant, Barbara E. and Andrew J. Morrison. "Travel Market Segmentation and the Implementation of Market Strategies," Journal of Travel Research 18(Winter-1980): 2-8.

Burch, William R., Jr. "Wilderness--The Life Cycle and Forest Recreational Choice," Journal of Forestry 64(1966): 606- 610.

Calantone, Roger J. and Jotindar S. Johar. "Seasonal Segmentation of the Tourism Market Using a Benefit Segmentation Framework," Journal of Travel Research 23(Fall-1984): 14-24.

Crask, Melvin R. "Segmenting the Vacationer Market: Identifying the Vacation Preferences, Demographics, and Magazine Readership of Each Group," Journal of Travel Research 19(Fall-1981): 29-34.

Dillman, D. A. Mail and Telephone Surveys: The Total Design Method. New York: Wiley, 1978.

Driver, B. L. "Quantification of Outdoor Recreationists'Preferences." In Research: Camping and Environmental Education, ed. B. Van der Smissen and J. Meyers. HPEP Series No. 11. University Park, Pa.: The Pennsylvania State University. 1975: 165-187.

Driver, B. L. "Item Pool for Scales Designed to Quantify the Psychological Outcomes Desired and Expected from Recreation Participants," Unpublished USDA Forest Service Report. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 1977.

Driver, B. L. and Perry J. Brown. Appendix A: " A Social-Psychological Definition of Recreation Demand, With Implications For Recreation Resource Planning," IN: Assessing Demand For Outdoor Recreation. National Academy of Sciences, Washington, D. C. 1975. pp64-88.

Driver, B. L. and Perry J. Brown. "The Opportunity Spectrum Concept and Behaviorial Information in Outdoor Recreation Resource Supply Inventories: A Rationale," In: Integrated Inventories and Renewable Natural Resources: Proceedings of the Workshop, tech. coords. H. Gyde Lund et al., USDA Forest Service General Technical Report RM-55. Fort Collins, CO.: Rocky Mountain Forest and Range Experiment Station. 1978: 24-31.

Driver, B. L. and Richard C. Knopf. "Personality, Outdoor Recreation, and Expected Consequences," Environment And Behavior 9-2(June-1977): 169-193.

Driver, B. L. and S. R. Torcher. "Toward a Behavioral Interpretation of Recreational EngagementsWith Implications for Planning," In: Elements of Outdoor Recreation Planning, ed. B.L. Driver. Ann Arbor, Mich.: University of Michigan Press. 1970: 9-13.

Etzel, Michael J. and Arch G. Woodside. "Segmenting Vacation Markets: The Case of the Distant and Near-Home Travelers," Journal of Travel Research 20 (Sping-1982): 10-14.

Fraboni, Maryann and Douglas Cooper. "Six Clustering Algorithms Applied to The WAIS-R: The Problems of Dissimilar Cluster Results," Journal of Clinical Psychology 45(Nov.-1989): 932-941.

Frost, J. E. Visitor Perceptions Of Management Restrictions During Glacier Park's Bald Eagle Concentration. Master Thesis. Univ. of Montana, Missoula. 1985. 88pp.

Frost, J. E. and S. F.McCool. "Can Visitor Regulations Enhance Recreational Experiences?" Environmental Management 12(1-1988): 5-9.

Gorden, David G. The Audobon Society Field Guide to the Bald Eagle. Seattle, WA 98101: Sasquatch Books, 1991.

Haley, Russel I. "Benefit Segmentation: A Decision-Oriented Research Tool," Journal of Marketing 32(1968): 30-35.

Kaas, Richard A. and Howard E. A. Tinsley. "Factor Analysis," Journal of Leisure Research 11(1979) 2: 120-138.

Kellert, Stephen R. "Contemporary Values of Wildlife in American Society," In: Methods of Assessing and Categorizing Values of Wildlife. U. S. Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, Colorado. 1980a.

Kellert, Stephen R. "Americans' Attitudes and Knowledge of Animals," In: Trans. North American Wildlife and Natural Resource Conference 45(1980b): 111-124.

Kellert, Stephen R. "Social and Perceptual Factors In Endangered Species Management," Journal of Wildlife Management 49 (2-1985): 528-536.

Kellert, Stephen R. "Birdwatching in American Society," Leisure Sciences 7(3-1985): 343-359.

Kellert, Stephen R. "The Public and the Timber Wolf of Minnesota." Anthrozoos 1 (2-1987): 100-109.

Kellert, Stephen R. "Attitudes, Knowledge, and Behaviors Toward Wildlife as Affected by Gender," Wildlife Society Bulletin15(1987): 363-371.

Lehmkuhl, David C., "Marketing: Segmenting Not Marketing," Marketing and Media Decisions (Mar.-1984): 88-91.

Loker, Laurie E. and Richard R. Perdue. "A Benefit-Based Segmentation of a Nonresident Summer Travel Market," Journal of Travel Research 31(Summer-1992): 30-35.

Lucas, Robert C. "Recreation Regulations -- When Are They Needed?" Journal of Forestry 80(1982): 148-151.

Lucas, Robert C. "Attitudes Toward Wilderness and Factors Affecting Visitor Behavior: A State-of-Knowledge Review," In Proceedings- National Wilderness Research Conference: Issues, State-of- Knowledge, Furure Directions. Ft. Collins CO, July 23-26, 1985, General Technical Report INT-220. Intermountain Research Station, Federal Building, 3244 25th ST., Ogden, UT 84401. 48pp.

Manning, Robert E. "Diversity in a Democracy: Expanding the Recreation Opportunity Spectrum," Leisure Sciences 7(4-1985): 377-399.

McCool, Stephen F. and Neal A. Christensen. "Alleviating Congestion in Parks and Recreation Areas Through Direct Management of Visitor Behavior," Paper presented as part of the symposium "Emerging Issues Workshop" at the National Park Service Meeting Wilder Forest Conference Center, Minnesota.. 22 - 25 February 1993.

Milligan, Glenn W. and Martha C. Cooper. "An Examination of Procedures For Determining the Number of Clusters in a Data Set" PSYCHOMETRIKA 50-2(June-1985): 159-179.

Moissy Neal A. and Stephen F. McCool. "The BenefitSegmentation--Expenditure Connection The Case of Snowmobiles," In: Twenty-First Annual Conference Proceedings, The Fairmon Hotel, New Orleans, LA. The Tourism Connection: Linking Research and Marketing (Oct-1990): 375-381.

Norusis, Marija. SPSSPC+ Statistics 4.0 For The IBM PC/XT/AT And PS/2. SPSS, Inc.Chicago, Il. 1990.

Overall, John E., Janet M. Gibson and Diane M. Novy. "Population Recovery Capabilities of 35 Cluster analysis Methods," Journal of Clinical Psychology 49-4(July-1993): 459-470.

Perdue, Richard R. "Segmenting State Travel Information Inquirers by Timing of Destination Decision and Previous Experience," Journal of Travel Research 4(Winter-1985): 6-11.

Petersen, George L. and David W. Lime. "People and Their Behavior: A Challenge for Recreation Management," Journal of Forestry 77(1979): 343-346.

Pitts, Robert E. and Arch G. Woodside. "Personal Values and Travel Decisions" Journal of Travel Research 25(Summer-1986): 20-25.

Schreyer, Richard. "Experience Level Affects Expectations For Recreation Participation" In: Forest And River Recreation Misc. Pub. 18-1982. (1982).

Shafer, Elwood L., Jr. "The Average Camper Who Doesn't Exist," USDA Forest Services. (1969).

Tatham, Ronald L. and Ronald J. Dornoff. "Market Segmentation For Outdoor Recreation" Journal of Leisure Research 3(1-1971): 5-16.

Tabachnick, Barbara G. and Linda S. Fidell. Using Multivariate Statistics Harper and Row Publishers New York, NY (1983).

United States Congress. 8 June, 1940: 54 Stat 250; 16 USC 668 et seq. "Bald Eagle Protection Act of 1940," Washington, D.C.

United States Congress. Public Law 93-205-Dec. 28, 1973. "Endangered Species Act of 1973," 87 Stat. 884; 16 USC 1531 et seq. Washington, D.C.

Virden, Randy J. and Richard C. Knopf. "Activities, Experiences, and Environmental Settings: A Case Study of Recreation Opportunity Spectrum Relationships" Leisure Sciences 11(1989): 159-176.

Wagar, J. Alan. "Quality in Outdoor Rerecreation," Trends 3(3-1966): 9-12.

Watson, Alan, E. and Michael J. Niccolucci. "Defining Past-Experience Dimensions for Wilderness Recreation," Leisure Sciences 14(Apr-Jun, 1992) 2: 89-103.

Weinstein, Arthur. Market Segmentation. Probus Publishing Co. Chicago, Il. (1987). 296 Pages.

Weinstein, Arthur and Marvin Nesbit. "How to Size Up Your Customers," American Demographics (July-1986): 34-37.

Wind, Yoram, "Issues and Advances in Segmentation Research," Journal of Marketing Research 15 (1978):317-337.

Woodside, Arch G., Victor J. Cook and William A. Mindak. "Profiling the Heavy Traveler Segment" Journal of Travel Research 6(Spring-1987): 9-14.

Woodside, Arch G. and Laurence W. Jacobs. "Step Two in Benefit Segmentation: Learning the Benefits Realized By Major Travel Markets," Journal of Travel Research 24 (Summer-1985) 7-13.

Young, Shirley, Leland Ott and Barbara Feigin. "Some Practical Considerations in Market Segmentation" Journal of Marketing Research 15(August-1978): 405-412.

APPENDIX A

Initial Contact Record

VISITOR REGISTRATION CARD

Group Size: _____

Group Type: _____ Alone _____ Family _____ Friends

_____ Family & Friends _____ Club

Please print the complete name, mailing address and age of each person in your party who is 18 years old or older.

PLEASE PRINT

NAME	STREET ADDRESS	CITY	STATE	ZIP	AGE

APPENDIX B

First Cover Letter

NIVERSITY
MONTANA
Institute for Tourism and Recreation Research
Science Complex 428 University of Montana Missoula Montana 59812 406/ 243 5426

Dear Bald Eagle Visitor:

As you may recall, you were contacted during your visit to view the bald eagles at either the Visitor Center or the Riverside Viewing Area about participating in a study of visitors.

The study involves identifying how visitors feel about the current management of this area and their preferences for various management actions. Also, the knowledge, attitudes and preferences, and the economic impact of visitors is being studied. You are one of a small number of visitors who have been randomly selected for participation in this study, so your responses are important for the study's success. We certainly appreciate your cooperation.

Enclosed is a questionnaire which will take 15-20 minutes to complete. Your responses will not only help us in our work, but will be very helpful in making overall decisions concerning management of the Riverside Viewing Area and in protecting the bald eagle.

Please be assured that your responses will be tabulated in such a manner that no one individual can be identified. After you have completed the questionnaire, enclose it in the self-addressed, stamped envelope and drop it in any convenient mailbox.

If you have any questions concerning this study, please contact us.

Sincerely,

Walter L. Bradford
Graduate Student

APPENDIX C

Reminder Postcard

Dear Bald Eagle Visitor:

Several days ago, I mailed you a questionnaire concerning your visit to the Riverside Viewing Area. Because only a few bald eagle visitors were selected to participate in the study, the study's success depends on your response.

I appreciate your cooperation in the study and look forward to receiving your completed questionnaire. If you have already responded, thank you.

Sincerely,

Walter L. Bradford
Graduate Student

The University of Montana
Institute for Tourism and Recreation Research
Science Complex 443, The University of Montana, Missoula, Montana 59812

APPENDIX D

Second Cover Letter

Montana
Institute for Tourism and Recreation Research
Science Complex 443, The University of Montana, Missoula, Montana 59812, (406) 243-5426

Dear Bald Eagle Visitor:

Several weeks ago I sought your cooperation in a study of visitors at either the Canyon Ferry Visitor Center or the Riverside Viewing Area. As of this day, I have not received your completed questionnaire.

The study involves identifying how visitors feel about the current management of these areas and their preferences for various management actions. Also, the knowledge, attitudes and preferences, and the economic impact of the visitors are being studied. Because only a few bald eagle visitors were selected to participate in the study, the study's success depends on your response.

Enclosed is another copy of the questionnaire in the event you have misplaced the original. Please complete the questionnaire in the next several days. Place it in the stamped, self-addressed envelope and drop it in any convenient mailbox. If you have already responded, thank you.

If you have any questions concerning this study, please contact me.

Sincerely,

Walter L. Bradford
Graduate Student

APPENDIX E

Bald Eagle Visitor Survey Questionnaire

Riverside Bald Eagle Viewer Study

The University of Montana

Institute for Tourism and Recreation Research

During your visit to view the bald eagles at the Riverside Viewing Area, you were contacted by a graduate student. Please try to recall the day you were contacted by him and complete this questionnaire with that day in mind.

1. Was this your first visit to the Riverside Viewing Area? (*Circle one number)*
   1. YES
   2. NO (if NO, please indicate how many visits you have made to the Riverside Viewing Area?)

   VISITS?_____

2. About how long was your visit to the Riverside Viewing Area? (*Circle one number)*
   1. LESS THAN ONE HOUR
   2. ONE TO TWO HOURS
   3. TWO TO FOUR HOURS
   4. MORE THAN FOUR HOURS

3. During your visit, what type of group were you with? (*Circle one number*)
   1. ALONE 2. FAMILY
   3. FRIENDS 4. FAMILY & FRIENDS
   5. CLUB OR ORGANIZED GROUP

4. About how many people were in your group including yourself?
   NUMBER?_____

5. During your eagle viewing trip, what areas did you visit? (*Circle all that apply*)
   1. RIVERSIDE VIEWING AREA
   2. YORK BRIDGE
   3. HAUSER DAM
   4. CANYON FERRY VISITOR CENTER

6. Was the primary purpose of your visit to view bald eagles? (*Circle one number*)
   1. YES
   2. NO

6. CONTINUED

b) How did you learn about the bald eagle concentration? (*Circle all that apply*)

1. FROM PREVIOUS VISITS TO THE RIVERSIDE VIEWING AREA
2. FROM TELEVISION AND/ OR RADIO
3. FROM NEWSPAPER AND/ OR MAGAZINE ARTICLES
4. FROM FRIENDS OR RELATIVES
5. OTHER (specify)_____

7. About how many people did you see at the Riverside Viewing Area?
APPROXIMATE NUMBER OF VISITORS?_____

8. How did you feel about the number of people you saw? (*Circle one number*)

1. SAW FAR TO FEW
2. SAW TOO FEW
3. ABOUT RIGHT
4. SAW TOO MANY
5. SAW FAR TOO MANY
6. DID NOT MATTER TO ME EITHER WAY
7. DO NOT REMEMBER

9. How did you feel about the number of vehicles you saw at the Riverside Viewing Area? (*Circle one number*)

1. SAW FAR TOO FEW
2. SAW TOO FEW
3. ABOUT RIGHT
4. SAW TOO MANY
5. SAW FAR TOO MANY
6. DID NOT MATTER TO ME EITHER WAY
7. DO NOT REMEMBER

10. Did you hear any human-caused sound (chainsaws, automobiles, dogs, human yelling) in the eagle viewing area on this visit? (*Circle one number*)

1. NO
2. YES (If YES, please answer the following)

a) Briefly describe the sound you heard.

_____

_____

b) How did you feel about this sound? (*Circle one number*)

1. I WAS NOT DISTURBED BY THE SOUND
2. I WAS DISTURBED BY THE SOUND
3. DID NOT MATTER TO ME EITHER WAY
4. DO NOT REMEMBER

11. As other vehicles entered the Riverside Viewing Area, how did you feel about their speed? (*Circle one number*)
    1. THE SPEED WAS EXCESSIVE
    2. THE SPEED WAS ABOUT RIGHT
    3. THE SPEED COULD HAVE BEEN FASTER
    4. I DID NOT NOTICE THE SPEED OF OTHER VEHICLES

12. On your visit to view the bald eagles, did you bring any viewing equipment? (*Circle one number*)
    1. NO 2. YES (If YES, *Circle all that apply*)
       1. Binoculars
       2. Spotting Scope
       3. Camera and Telephoto Lens
       4. Other (specify) _____

13. Do you reside in either Broadwater or Lewis and Clark Counties? (*Circle one number*)
    1. YES
    2. NO (If NO, please answer the following questions regarding your bald eagle viewing trip.)

    a.) Was the primary purpose of your visit to the Helena area to view bald eagles?

       1. YES
       2. NO (If NO, what was the primary reason for visiting the Helena Area?)

    b.) How many nights did you spend in either county on your bald eagle viewing trip?

       _____Nights

14. About how much did spend in Broadwater or Lewis and Clark Counties for the following?

    Lodging $_____

    Gas/Oil $_____

    Food/Beverage $_____

    Other $_____

15. Each person has many individual reasons for visiting a wildlife viewing area. Below is a list of reasons given by recreationists for their visits. Try to recall *how important* EACH of the following reasons was to you during your visit to the Riverside Viewing Area. Please check one of the following for each statement.

I visited the Riverside Viewing Area:	Not important	Slightly important	Somewhat important	Moderately important	Very important	Extremely important
to observe the scenic beauty.	( )	( )	( )	( )	( )	( )
for a chance to be on my own.	( )	( )	( )	( )	( )	( )
to be in a natural setting.	( )	( )	( )	( )	( )	( )
to experience the tranquility here.	( )	( )	( )	( )	( )	( )
so I could do things with my companions.	( )	( )	( )	( )	( )	( )
to enjoy the smells and sounds of nature.	( )	( )	( )	( )	( )	( )
so I could be creative such as sketch, take photos and etc.	( )	( )	( )	( )	( )	( )
to be at a place where I can make my own decisions.	( )	( )	( )	( )	( )	( )
to understand the natural world better.	( )	( )	( )	( )	( )	( )
so my mind could move at a slower pace.	( )	( )	( )	( )	( )	( )
to be with and observe other people using the area.	( )	( )	( )	( )	( )	( )
to learn more about nature.	( )	( )	( )	( )	( )	( )

15. CONTINUED

I visited the Riverside Viewing Area:	Not Important	Slightly Important	Somewhat Important	Moderately Important	Very Important	Extremely Important
to escape the daily responsibilities of life for awhile.	( )	( )	( )	( )	( )	( )
for the solitude.	( )	( )	( )	( )	( )	( )
for a chance to have control over things.	( )	( )	( )	( )	( )	( )
to be with others who enjoy the same things as I do.	( )	( )	( )	( )	( )	( )
to help reduce or release built-up tensions.	( )	( )	( )	( )	( )	( )

In order to more adequately manage the Riverside Viewing Area, we are interested in learning about your experience viewing bald eagles.

16. During the bald eagle concentration, the Department of Fish, Wildlife, and Parks implements several restrictions, such as closing some areas to visitors or recreationists. Were you aware of those restrictions? (*Circle one number*)

1. NO
2. YES (If YES, please answer the following)

a) Do you think there is adequate information available concerning WHERE these closures exist? (*Circle one number*)

1. YES 2. NO 3. UNSURE

b) Do you think there is adequate information available concerning WHY these closures exist? (*Circle one number*)

1. YES 2. NO 3. UNSURE

c) In your opinion, are these closures necessary? (*Circle one number*)

1. YES 2. NO 3. UNSURE

Please explain why you feel this way.

16. CONTINUED

d) How did these restrictions or closures affect your experience? (*Circle one number*)

1. RESTRICTIONS GREATLY ADDED TO MY EXPERIENCE
2. RESTRICTIONS SOMEWHAT ADDED TO MY EXPERIENCE
3. RESTRICTIONS DID NOT ADD TO NOR DETRACT FROM MY EXPERIENCE
4. RESTRICTIONS SOMEWHAT DETRACTED FROM MY EXPERIENCE
5. RESTRICTIONS GREATLY DETRACTED FROM MY EXPERIENCE

17. Did you meet any of the Fish, Wildlife, and Parks personnel or volunteer naturalists? (*Circle one number*)

1. NO
2. YES (If YES, please answer the following)

a) Were these personnel helpful in answering any questions you may have had? (*Circle one number*)

1. YES
2. NO
3. I DID NOT ASK QUESTIONS

b) Did these personnel add to or detract from your experience? (*Circle one number*)

1. ADDED TO MY EXPERIENCE
2. DETRACTED FROM MY EXPERIENCE
3. NEITHER DETRACTED NOR ADDED TO MY EXPERIENCE

18. a) About how many bald eagles did you see?

NUMBER_____

b) How many eagles did you expect to see?

NUMBER_____

c) Please describe your feeling of any difference:

19. How far in advance of your visit did you make your decision to visit the Riverside Viewing Area? (*Circle one number*)
    1. THE SAME DAY AS YOUR VISIT
    2. THE DAY BEFORE YOUR VISIT
    3. TWO TO THREE DAYS BEFORE YOUR VISIT
    4. FOUR TO SEVEN DAYS BEFORE YOUR VISIT
    5. TWO WEEKS BEFORE VISIT
    6. OTHER (SPECIFY) _____

20. Are there any additional services or interpretive programs you would like to see added? (*Circle one number)*
    1. NO
    2. YES (If YES, please list)_____

    _____

    _____

21. As interest increases in viewing bald eagles at the Riverside Viewing Area adjustments in viewing habits MAY need to be made in order to avoid impacting the bald eagles. Your ability to view the bald eagles in the existing manner MAY need to be changed. PHYSICALLY DISABLED PERSONS WOULD BE PROVIDED FOR under this adjustment.

    a) Would you be willing to park elsewhere and walk to the viewing area? (*Circle one number*)
    1. NO
    2. YES (If YES, how long would you be willing to walk in terms of time?

    WALKING TIME IN MINUTES? _____

    b) Would you be willing to park elsewhere and pay a fee to be transported to the Riverside Viewing Area? (*Circle one number*)
    1. NO
    2. YES (If YES, how much would you be willing to pay per person? THE CURRENT FEE IS $3.00 PER VEHICLE OR A CURRENT STATE PARKS DAY USE STICKER).

    INDIVIDUAL FEE $_____

21. CONTINUED

c) Listed below are several statements about closures at Riverside Viewing Area during the bald eagle concentration. CIRCLE THE NUMBER beside the ONE statement which most nearly matches your own personal feeling.

1. IT IS ABSOLUTELY NECESSARY THAT ALL AREAS USED BY BALD EAGLES BE CLOSED TO VISITORS.
2. GENERALLY, IT WOULD BE PREFERABLE TO CLOSE AREAS WHERE THE PRESENCE OF VISITORS WOULD NEGATIVELY IMPACT BALD EAGLES.
3. IT IS HARD TO DECIDE WHETHER AREAS SHOULD BE CLOSED OR NOT.
4. GENERALLY, IT WOULD BE PREFERABLE IF VISITORS WERE ALLOWED TO VIEW BALD EAGLES WHEREVER THEY WISH.
5. IT IS ABSOLUTELY NECESSARY THAT VISITORS BE ALLOWED TO VIEW BALD EAGLES WHEREVER THEY WISH.

d) The intent on placing restrictions on human behavior is to provide quality wildlife viewing without causing negative impacts to the bald eagles. Please make any comments you have about restrictions to human behavior while viewing bald eagles.

REMARKS:

22. We are interested in your knowledge about bald eagles and salmon. Please indicate whether each of the following statements is basically true basically false or if you are unsure answer by checking the appropriate box.

	True	False	Unsure
Bald eagles are an endangered species.	( )	( )	( )
Bald eagles concentrate at the Riverside Viewing Area throughout the year.	( )	( )	( )

22. CONTINUED	True	False	Unsure
Bald eagles concentrate at the Riverside Viewing Area because of the abundance of Kokanee.	( )	( )	( )
Bald eagles generally arrive at the Riverside Viewing Area from the north.	( )	( )	( )
Golden eagles are as numerous as bald eagles during this eagle concentration.	( )	( )	( )
The salmon in the Hauser Lake were introduced by people.	( )	( )	( )
The bald eagle population in Montana is generally declining.	( )	( )	( )
Bald eagles generally lay one to three eggs in March or April.	( )	( )	( )
Bald eagles attain maturity and their their distinctive white heads and tails at age three years.	( )	( )	( )
Today, there is plenty of protected habitat for nesting and wintering bald eagles.	( )	( )	( )
The wingspan of an adult bald eagle is six to seven and one half feet.	( )	( )	( )
An eagle may see three times better than a human.	( )	( )	( )
The adult female bald eagle is up to thirty percent larger than the adult male.	( )	( )	( )
The main cause for decline bald eagle population was pesticides and DDT.	( )	( )	( )
An eagle can spot a small animal up to one mile away.	( )	( )	( )
The salmon at Hauser Lake are not native.	( )	( )	( )

23. We are interested in your attitude toward the bald eagles, wild animals, and animals in general. Please indicate your answer by *Checking One of the Following for Each Question.*

	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	No Opinion Formed
Creatures like spiders and moles are generally of little value to nature.	( )	( )	( )	( )	( )
I see little wrong with harvesting deer for their meat so long as the animal is not endangered.	( )	( )	( )	( )	( )
When walking in the woods, I like finding strange and unusual insects.	( )	( )	( )	( )	( )
I see little wrong with filling wetlands if the land can be used for more jobs and income.	( )	( )	( )	( )	( )
I consider myself a person who likes animals but I would not say I love them.	( )	( )	( )	( )	( )
I regard any kind of recreational hunting as cruel to animals.	( )	( )	( )	( )	( )
I do not approve of protecting wild animals if it hurts the economic livelihood of people who make a living from the land.	( )	( )	( )	( )	( )
I am more interested in seeing exciting animals like bald eagles or mountain goats than seeing boring ones like gophers and moles.	( )	( )	( )	( )	( )
My love for outdoor wildlife is among my strongest feelings.	( )	( )	( )	( )	( )
I see nothing wrong with using leg-hold traps to capture wild animals.	( )	( )	( )	( )	( )
I have little desire to see unusual snakes or lizards in a place like the Florida Everglades.	( )	( )	( )	( )	( )

23. CONTINUED

	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	No Opinion Formed
I have little interest in learning about the evolutionary development of animals.	( )	( )	( )	( )	( )
Animals like the bald eagle and grizzly are part of our vanishing wilderness; they should be protected even if those who make a living from the land would be hurt economically.	( )	( )	( )	( )	( )
I have little desire to hike many miles into wilderness away from people, just to see a mountain lion.	( )	( )	( )	( )	( )
It is fascinating to know the taxonomic differences between the cougar and the bobcat.	( )	( )	( )	( )	( )
We must use pesticides, even those harmful to wildlife, to maintain the country's food production.	( )	( )	( )	( )	( )
If given the choice between viewing a wildlife attraction like an eagle or a rodent, I would prefer to view an eagle.	( )	( )	( )	( )	( )
I have little interest in learning about the ecology of communities like prairie dog towns or squirrels.	( )	( )	( )	( )	( )
The bald eagle symbolizes American free-spirit and independence.	( )	( )	( )	( )	( )
I have affection for different animals, but I am not especially interested in learning about their ecological characteristics.	( )	( )	( )	( )	( )
Viewing wild animals is one of the greatest emotional satisfactions of my life.	( )	( )	( )	( )	( )
I generally get bored with scientific discussions about animals.	( )	( )	( )	( )	( )

24. Montana has other wildlife viewing opportunities. We are interested in finding out if people would travel to other parts of this state to view other wildlife.
Would you travel elsewhere in Montana to view wildlife and how far would you be willing to travel?

	YES	NO	MILES
MOOSE	( )	( )	_____
MOUNTAIN GOATS	( )	( )	_____
BIGHORN SHEEP	( )	( )	_____
GOLDEN EAGLES	( )	( )	_____

25. Finally, we have a few questions about you personally which provide information useful in management. Please remember you will not be identified with your answers, so please be frank.

A. What is your present age?_____

B. What best describes the area in which you live? (*Circle one number*)

1. LARGE CITY OVER ONE MILLION PEOPLE
2. MEDIUM CITY 250,000 TO ONE MILLION PEOPLE
3. SMALL CITY 50,000 TO 250,00 PEOPLE
4. LARGE TOWN 5,000 TO 50,000 PEOPLE
5. SMALL TOWN 1000 TO 5000 PEOPLE
6. RURAL
7. FARM OR RANCH

C. What is the highest education level you have completed so far? (*Circle one number)*

1. GRADE SCHOOL
2. HIGH SCHOOL
3 VOCATIONAL SCHOOL
4. SOME COLLEGE
5. COLLEGE GRADUATE
6. POST GRADUATE STUDY

25. CONTINUED

D. WHAT IS YOUR OCCUPATION? (Please indicate what kind work you do, not for whom you work. If you are a homemaker, student or retired, please so indicate. If you are retired please also state your occupation before retirement.)

OCCUPATION?_____

E. Are you the primary wage earner in your household?

1. YES
2. NO ---- What does the primary wage earner do for a living?

_____

F. What was the total 1991 annual household income of all members of your immediate family living in your household. (*Circle one number*)

1. UNDER $10,000
2. $10,001 - $20,000
3. $20,001 - $30,000
4. $30,001 - $40,000
5. $40,001 - $50,000
6. $50,001 - $75,000
7. OVER $75,000

Please feel free to make any additional comments or suggestions concerning your visit to or the management of the Riverside Viewing Area.

THANK YOU VERY MUCH FOR YOUR HELP.

PLEASE PLACE YOUR COMPLETED QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AND DROP IT IN ANY CONVENIENT MAILBOX.

APPENDIX F

Bald Eagle Visitor Sample Plan

SAMPLING SYSTEM

The sampling objective was to attain a representative sample of adult visitors present during the bald eagle concentration. Bald eagle viewing visitation coincides with the eagle concentrations. Yearly, the primary bald eagle concentration season takes place between November 1 and December 15. Because of logistical and financial constraints, sampling was planned for five, three-day periods. Each sampling day consisted of two three-hour periods.

During presample planning, it was decided that one weekday and four weekend sampling periods were needed to gain enough names for an initial sample of 450 people. Each day of the week is represented. Four three-day weekend sample periods were randomly chosen before randomly choosing the one weekday period. Saturday, October 31, 1992 was included in the first weekend of sampling. Seven weekend sample periods were possible during the 1992 migration concentration season. Each weekend sampling period was listed on a separate sheet of paper and then placed in a bowl. Four of the possible weekend sampling periods were drawn from the bowl (see appendix A for the results).

The sampling periods for weekends were either Friday through Sunday or Saturday through Monday. A coin flip decided when the weekend sampling would begin. The choices were Friday (Heads) or Saturday (Tails). Tails appeared on the coin flip. If one weekend sampling period began on a Saturday, the next weekend sampling period would begin on a Friday.

One three-day weekday period (Tuesday through Thursday) for sampling visitors

was also chosen. The three-day weekday period could not occur before a beginning Friday weekend sampling period or after a Monday ending weekend sampling period. After deciding the weekend sample periods, only two weekday sampling periods remained available: November 17, 18, and 19 and November 24, 25, and 26. With a random bowl drawing the November 17, 18, and 19 weekday sample period was chosen.

Daily sampling times were from 9:00 A.M. until Noon and 1:00 P.M. until 4:00 P.M. The choices for the three-hour morning sampling period were either the Canyon Ferry Visitor Center or the Riverside Viewing Area. Daily sampling for each site was accomplished with a morning coin flip. When sampling at the Canyon Ferry Visitor Center was completed in the morning three-hour period; then, afternoon sampling was completed at the Riverside Viewing Area. At the beginning of the study, few people patronized the visitor center, so more time was spent at the Riverside Viewing Area for sampling. During the second weekend sample period, the three-hour alternation at the sites was initiated and continued through the end of the visitor sampling as previously planned.

Through excellent cooperation, an adequate number of visitors was contacted in the first four sampling periods. Therefore, the last weekend for visitor sampling was unnecessary. The visitor sampling for this study occurred during the randomly chosen first three weekend sample periods and the one weekday sample period. The final visitor sampling concluded after the eagle migration concentration had peaked.

Table 32. Bald eagle visitor sampling schedule for Fall Ball eagle concentration 1992.

Period	Days	Dates 1992
One	Saturday, Sunday and Monday	Oct. 31 to Nov. 2
Two	Friday, Saturday and Sunday	Nov. 13 to Nov. 15
Three	Tuesday, Wednesday and Thursday	Nov. 17 to Nov. 19
Four	Saturday, Sunday and Monday	Nov. 28 to Nov. 30
Five*	Friday, Saturday and Sunday	Dec. 11 to Dec. 13

* This sampling period not completed due to sufficient amount of willing participants.